

1969  
Shelve in Stacks S.B.T.

# Highway Safety Literature

Annual Cumulation 1969  
Accident Bibliography. . .

HS-820 073

Issues 69-1 through 69-50

January-December 1969



*U.S. Department of Transportation / National Highway Safety Bureau*



**HIGHWAY SAFETY LITERATURE  
ANNUAL CUMULATION 1969  
ACCIDENT BIBLIOGRAPHY**

**Issues 69-1 through 69-50  
[January - December 1969]**

Published by  
National Highway Safety Bureau

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EDITOR'S NOTE: Material published in HIGHWAY SAFETY LITERATURE (HSL) is intended for the information and assistance of the motor vehicle, highway safety community. While brand names, equipment model names and identification, and companies may be mentioned from time to time, this data is included as an information service. Inclusion of this information in the HSL should not, under any circumstances, be construed as an endorsement or an approval by the Department of Transportation of any particular product, course, or equipment.



## INTRODUCTION

The Technical Information System of the National Highway Safety Bureau acquires scientific and technical information covering all phases of traffic and motor vehicle safety, especially on those subjects encompassed by the National Traffic and Motor Vehicle Safety Act of 1966, and the National Safety Act of 1966. Each week, citations to these acquisitions are published in HIGHWAY SAFETY LITERATURE.

This publication is a five volume set which cumulates all citations which appeared in HIGHWAY SAFETY LITERATURE during 1969. Each volume covers one broad subject field and is arranged by group according to the NHSB SUBJECT CATEGORY FIELDS AND GROUPS listed below:

### NHSB SUBJECT FIELDS AND GROUPS

#### 1/0 ACCIDENTS HS-820 073

- /1 Emergency Services (11, 15-16)
- /2 Injuries
- /3 Investigation and Records (10, 14-15)
- /4 Locations (9, 14)
- /4 Governmental Aspects
- /5 Information Technology
- /6 Insurance
- /7 Mathematical Sciences
- /8 Transportation Systems

#### 2/0 HIGHWAY SAFETY HS-820 074

- /1 Breakaway Structures
- /2 Communications
- /3 Debris Hazard Control and Cleanup (15-16)
- /4 Design and Construction (12, 14)
- /5 Lighting (14)
- /6 Maintenance (12)
- /7 Meteorological Conditions
- /8 Police Traffic Services (15)
- /9 Traffic Control (13-14)
- /10 Traffic Courts (7)
- /11 Traffic Records (10)

#### 5/0 VEHICLE SAFETY

HS-820 077

\* All Federal Motor Vehicle Safety Standards apply to passenger vehicles. An asterisk before a subject group indicates additional types of vehicles to which the indicated standards may apply.

- /1 Brake Systems (102, 105-6, 116)
- \* /2 Buses, School Buses, and Multipurpose Passenger Vehicles (102-4, 106-8, 111-3, 116, 205-6, 209, 211)
- \* /3 Cycles (3; 108, 112, 116, 205)
- /4 Design (14; 101-2, 105, 107, 201)
- /5 Door Systems (201, 206)
- /6 Fuel Systems (101, 301)
- /7 Glazing Materials (205)
- /8 Hood Latch Systems (113)
- /9 Inspection (1)
- /10 Lighting Systems (101, 105, 108, 112)
- /11 Maintenance and Repairs
- /12 Manufacturers, Distributors, and Dealers
- /13 Mirrors and Mountings (107, 111)
- /14 Occupant Protection (15; 201-4, 207-10)
- /15 Propulsion Systems
- /16 Registration (2, 10)
- /17 Safety Defect Control
- /18 Steering Control System (101, 107, 203-4)
- /19 Theft Protection (114-5)
- \* /20 Trucks and Trailers (102-4, 107-8, 112-3, 116, 205-6, 209)
- /21 Used Vehicles
- /22 Wheel Systems (109-10, 211)
- /23 Windshield-Related Systems (101, 103-4, 107, 205, 212)

#### 3/0 HUMAN FACTORS HS-820 075

- /1 Alcohol (8, 14)
- /2 Anthropomorphic Data
- /3 Cyclists
- /4 Driver Behavior
- /5 Driver Education (4, 14)
- /6 Driver Licensing (5, 10, 14)
- /7 Drugs Other Than Alcohol
- /8 Environmental Effects
- /9 Impaired Drivers
- /10 Passengers
- /11 Pedestrians (14-15)
- /12 Vision

#### 4/0 OTHER SAFETY-RELATED AREAS HS-820 076

- /1 Codes and Laws (6)
- /2 Community Support (17)
- /3 Cost Effectiveness

## SAMPLE ENTRIES

<p>Subject Category Array <span style="margin-left: 100px;">→</span></p> <p>NHSB Accession no. . . . . HS-800 069 <span style="margin-left: 20px;">Fld. 5/22</span></p> <p>Title of document . . . . . DEVELOPMENT OF A TEXTILE CORD LOAD TRANSDUCER</p> <p>Personal author(s) . . . . . by B. E. Bourland, S. K. Clark, R. N. Dodge</p> <p>Corporate author . . . . . Michigan Univ., Ann Arbor. Tire and Suspension Systems Research Group,</p> <p>ID Code number . . . . . M43800</p> <p>Collation <span style="margin-left: 100px;">→</span></p> <p>Publication date . . . . . May 1968 39p Contract CST377 Report no. 01193-1-T</p> <p>Abstract . . . . . A technique is described for building directly into a tire cord a small force transducer to measure tire cord loads directly. . . .</p> <p style="margin-left: 100px;">Search terms: Tire loads, Trans- ducers, Tire design, Pneumatic tires</p>	<p>HS-004 497 Fld. 5/19</p> <p><b>AUTO THEFT--THE PROBLEM AND THE CHALLENGE</b></p> <p>by Thomas A. Williams, Sr.</p> <p>Journal citation . . . . . Published in <i>FBI Law Enforcement Bulletin</i> v37 n12 p15-7 (Dec 1968)</p> <p>Gives figures on the extent of the auto theft problem and comments on antitheft devices available now or in the planning stage.</p> <p style="margin-top: 20px;">Search terms: Theft, Theft protec- tion, Stolen cars</p>
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AVAILABILITY: From CFSTI

## AVAILABILITY OF DOCUMENTS

Department of Transportation personnel may borrow copies of publication directly from the NHSB, Technical Reference Division (Phone: 426-2768 or 426-2769). Non-DOT personnel should contact their company or agency libraries for assistance.

Journals cited can be found in most research libraries. Reprints of journal articles can often be obtained without charge from the individual author, whose affiliation is usually given in the article.

Contractors reports and other documents can usually be obtained as indicated under AVAILABILITY. However, there is no certainty that retention copies will be available for more than a limited period after a document is issued.

The more common distribution sources are identified by symbols which are explained below:

CFSTI: Clearinghouse for Federal Scientific and Technical Information, Springfield, Va. 22151. Order by accession number: AD or PB; order NHSB contractors reports by HS numbers if a PB number is not given. Prepayment is required

by CFSTI coupon (GPO coupons are not acceptable), check, or money order (made payable to the Clearinghouse). HC (paper copy; full size original or reduced facsimile) \$3.00 MF (Microfiche; approximately 4x6" negative sheet file; special reader required) \$0.65.

GPO: Superintendent of Documents U.S. Government Printing Office, Washington, D.C. 20402. Give corporate author, title, personal author, and report number. Prepayment is required by GPO coupon (CFSTI coupons are not acceptable), check, or money order (made payable to the Superintendent of Documents).

HRB: Highway Research Board, National Academy of Sciences, 2101 Constitution Avenue, N.W., Washington, D. C. 20418.

FHWA-OPA: Federal Highway Administration, Washington, D.C. 20591. Office of Public Affairs.

NHSB: National Highway Safety Bureau, Washington, D.C. 20591.

SAE: Society of Automotive Engineers, 2 Pennsylvania Plaza, New York, N.W. 10001. Prices given are list; discounts are available to members and sometimes to libraries and U.S. Government agencies. Prepayment is required; orders without payment are subject to \$1 handling charge.

UMF: University Microfilms, 300 North Zeeb Road, Ann Arbor, Michigan 48106. Order dissertations by order number and author's name. Do not send payment with order. Invoice sent with shipment will include cost of order plus handling and shipping charges. HC (Bound, soft cover, xerographic copies, approx. 5 1/2 x 8 1/2"); MF (positive 35mm Microfilm).

#### OTHER NHSB TECHNICAL INFORMATION SYSTEM PUBLICATIONS

Available in single copies at no cost from DOT, NHSB, Technical Information System, Room 5116G, Washington, D.C. 20591.

NHSB Subject Category List, September 1969 - HS-820 051.

NHSB Corporate Author Authority List, January 1970 - HS-820 069.

NHSB Thesaurus Rules and Conventions, January 1970.

#### In Process:

NHSB Guidelines for Subject Analysis of Documents, 1970.

NHSB Thesaurus of Traffic and Motor Vehicle Safety Terms, June 1970.

NHSB Cumulative Indexes.



## 1/0 ACCIDENTS

HS-810 006 Fld. 1/0

### SAFETY GOALS FOR THE YEARS AHEAD

by Robert Brenner  
National Highway Safety  
Bureau, Washington, D.C.

1 May 1968 14p  
Presented at the Bendix  
Management Club, South  
Bend, Ind.

Highway deaths not usually  
seen as part of problem of  
violence in American life.  
Activities of National  
Highway Safety Bureau.  
Basic criteria for stand-  
ards is likelihood of imme-  
diate reduction of life,  
limb, and property loss.

Search terms: Accident  
causes, Accident preven-  
tion, Fatalities, Highway  
research, Safety engineer-  
ing, Safety research

AVAILABILITY: NHSB

HS-810 007 Fld. 1/0,5/0

### SOME VIEWS ON MOTOR VEHICLE AND HIGHWAY SAFETY

by Robert Brenner  
National Highway Safety  
Bureau, Washington, D.C.

28 Jun 68 18p  
Presented at the Recrea-  
tional Vehicle Institute  
Mid-Year Meeting, Chicago

Outlook for increasing re-  
creational use of vehicles.  
High accident rates of ve-  
hicles hauling utility and  
house trailers on turnpikes.  
Safety standards and programs  
and need of applying them  
to recreational vehicles.

Search terms: Accident  
prevention, Accident  
rates, Crash phase, Post-  
crash phase, Safety pro-  
grams, Safety standards,  
Trailers

AVAILABILITY: NHSB

HS-810 008 Fld. 1/0

THE CHANGING APPROACH TO THE  
EPIDEMIOLOGY, PREVENTION,  
AND AMELIORATION OF TRAUMA:  
THE TRANSITION TO APPROACHES  
ETIOLOGICALLY RATHER THAN  
DESCRIPTIVELY BASED.  
by William Haddon, Jr.  
National Highway Safety  
Bureau, Washington, D. C.

Published in American  
Journal of Public Health  
v58 n8 p1431-1438  
(Aug 1968)

Presented at the 95th  
Annual Meeting, American  
Public Health Association,  
Program on Epidemiology  
of Traffic Accidents,  
Oct. 26, 1967, Miami  
Beach, Fla.

Provides the theoretical  
basis for abandoning the  
concept of "accident",  
and the implications of  
substituting categoriza-  
tions based on energy  
exchange. Notes relation-  
ships between various  
forms of violence  
and their prevention,  
and the prevention of  
their results.

Search terms: Highway  
safety, Accident  
prevention, Etiology,  
Injury prevention,  
Medical sciences,  
Crash phases,  
Speeches

HS-810 015 Fld. 5/0,1/0

### COOPERATING FOR GREATER HIGHWAY SAFETY

by Robert Brenner  
National Highway Safety  
Bureau, Washington, D. C.

17 Apr 1968 10p  
Prepared for presentation  
at the 12th Highway Trans-  
portation Congress,  
Sponsored by National  
Highway Users Conference,  
Washington, D. C.

Describes crisis nature of  
present accident rates and  
programs of National Highway  
Safety Bureau to assist  
through standards for safer  
vehicles. Points out pro-

gress in motorcycle death  
reduction and crash survival  
with energy-absorbing steer-  
ing shafts.

Search terms: Accident  
prevention, Accident rates,  
Energy absorption, Highway  
safety, Motorcycle acci-  
dents, Motorcycle safety,  
Safety programs, Standards,  
Steering wheels

AVAILABILITY: NHSB

HS-810 016 Fld. 5/0,1/0

### PREVENTION OF ACCIDENTS AND INJURIES

by Robert Brenner  
National Highway Safety  
Bureau, Washington, D.C.

17 Apr 1968 10p  
Presented at the National  
Association of Independent  
Insurers Claims Workshop  
Meeting, San Francisco,  
Calif.

Progress made since passage  
of motor vehicle and highway  
safety legislation. Pre-  
crash, crash, and postcrash  
measures in accident preven-  
tion, safety equipment,  
emergency care. Role in-  
surance industry could play  
in data gathering.

Search terms: Accident  
data, Accident prevention,  
Crash phase, Emergency  
medical services, Highway  
safety, Insurance industry,  
Legislation, Post-crash  
phase, Pre-crash phase,  
Safety devices, Safety  
laws, Safety standards

AVAILABILITY: NHSB

HS-004 429 Fld. 1/0

STAPP CAR CRASH CONFERENCE  
(12TH), OCTOBER 22-23, 1968,  
DETROIT, MICHIGAN. PROCEED-  
INGS

1968 467p  
Sponsored by Biomechanics  
Research Center, Wayne  
State Univ. (Host) and  
Institute of Transporta-  
tion and Traffic Engineer-  
ing, UCLA. Conducted by

## 1/0 ACCIDENTS (Cont.)

HS-004-429 (Cont.)

SAE which also published the Proceedings

23 papers cover the following topics: auto accident injuries, rear-end and lateral impacts, restraint systems, systems analysis of occupants and vehicles, biomechanics in relation to accidents, safety research from Europe, and acceleration and impact studies. Each paper is analyzed separately.

Search terms: Accident research, Crash research, Side impact collisions, Rear end collisions, Restraint systems, Systems analysis, Occupant-vehicle interface, Biomechanics, Safety research, Acceleration (physics), Impacts, Injury research, Automobile accidents

AVAILABILITY: SAE (Includes HS-004 430 to HS-004 452)

HS-004 430 Fld. 1/0,1/2

### INJURIES TO CHILDREN IN AUTOMOBILE COLLISIONS

by Arnold W. Siegel, Alan M. Nahum, Michael R. Appleby  
California Univ., Los Angeles. School of Medicine

Report no. SAE-680771

Study of 46 collisions with 82 child occupants, placing emphasis on the mechanism of injury production and child collision kinematics. Case histories illustrate injury patterns. Childhood growth characteristics as they affect injury patterns and restraint systems are discussed in detail. Current systems are analyzed and recommendations made, 21 conclusions are presented. Examples of effects of collisions in pregnancy and cases of restrained children are also included.

Search terms: Restraint systems, Physiology, Collisions (accidents), Children, Injuries, Pregnancy, Kinematics

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p1-46 (HS-004 429)

HS-004 431 Fld. 1/0,1/3,5/4

### A STUDY OF ROLLOVER IN RURAL UNITED STATES AUTOMOBILE ACCIDENTS

by John W. Garrett  
Cornell Aeronautical Lab., Inc., Buffalo, N.Y.  
Automotive Crash Injury Research

Report no. SAE-680772

Study to determine whether gross passenger car characteristics are associated with frequency of rollover. Characteristics examined are vehicle weight, track width, and vehicle height. Data from New Mexico and Utah were analyzed, and indicate a strong correlation between rollover frequency and vehicle dimensions. Rollover increases as car size shifts from heavy, wide track, low vehicles to light, narrow track, high cars. Car weight and tread width appear to have greatest influence on vehicle overturn. A rollover index suitable for design purposes could be developed.

Search terms: Rollover accidents, Motor vehicle characteristics, Rural accidents, Tread design, Vehicle weight, Automobile design, Height

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p47-71 (HS-004 429)

HS-004 432 Fld. 1/0,1/3

### THE PATHOLOGY AND PATHO-

GENESIS OF INJURIES CAUSED BY LATERAL IMPACT ACCIDENTS  
by John D. States, David J. States

Report no. SAE-680773

Study of 48 lateral impacts correlating vehicle damage and occupant injury. Side-swipes produced serious injury only when occupant's elbow was protruding through window or occupant space of vehicle was seriously compromised. Intersection and drifting impacts, particularly from opposite direction, caused most serious injuries. Door is most common injury-producing structure of vehicle. Recommends deep wrap-around seats, stronger doors, door frames, and chassis structures to reduce occupant space penetration and to absorb impact energy.

Search terms: Side impact collisions, Arm injuries, Seat design, Doors, Automobile design, Injuries, Damage, Impact tolerance

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p72-93 (HS-004 429)

HS-004 433 Fld. 1/0,5/14

### VEHICLE DESIGN FOR PASSENGER PROTECTION FROM HIGH-SPEED REAR-END COLLISIONS

by Derwyn M. Severy, Harrison M. Brink, Jack D. Baird  
California Univ., Los Angeles. Inst. of Transportation and Traffic Engineering

Report no. SAE-680774

Series of three auto rear-end collision experiments provided data relating to seat, seat backrest, and head restraint design. Designs were subjected to a 55 mph collision. Post-crash fire studies are also given, the first published data on precise time-related

## 1/0 ACCIDENTS (Cont.)

HS-004-433 (Cont.)

events associated with collision-induced fires. Design revisions suggested by these findings are discussed.

Search terms: Automobile design, Seat back design, Seat design, Headrests, Rear end collisions, High speed, Collisions (accidents), Impact tests, Fires, Fire protection, Time factor

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p94-163 (HS-004 429)

HS-004 434 Fld. 1/0,4/7,5/14

HEADREST AND SEAT BACK DESIGN PROPOSALS  
by John L. Martinez  
Tulane Univ., New Orleans, La.

Report no. SAE-680775

Nonlinear mathematical model is used to predict head motions during automotive rear-end collisions. Physical characteristics of seat back are extremely important in mechanics of occupant's torso and head. Velocity, displacement, and acceleration patterns of head and torso were studied. Concept of yielding seat back is studied as design for attenuating impact experienced in rear-end collision.

Search terms: Headrests, Seat back design, Rear end collisions, Head injuries, Mathematical models, Mechanics (physics), Velocity, Acceleration patterns, Physiology

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p164-71 (HS-004 429)

HS-004 435 Fld. 1/0,5/14

ELEMENTS OF AN EFFECTIVE CHILD RESTRAINT SYSTEM  
by Robert A. Rogers,  
Jeffrey N. Silver  
General Motors Proving Ground, Milford, Mich.

Report no. SAE-680776

Success of an effective system for preventing child injury must be measured in terms of child acceptance as well as impact performance and anatomical considerations. Adult lap belts, child harnesses and vests, rearward facing seats, and child auxiliary seats are compared. Different types of restraint systems are needed as children grow.

Search terms: Children, Restraint systems, Safety design, Seat belt design, Shoulder harnesses, Injury prevention, Seat design

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p172-87 (HS-004 429)

HS-004 436 Fld. 1/0,5/4

ANALYSIS OF INTERRELATION OF VEHICLE TO SEAT BELT AS A FUNCTION OF RIGIDITY OF THE VEHICLE  
by Claude Tarriere  
Regie Nationale des Usines Renault, Boulogne-Billancourt (France)

Report no. SAE-680777

Experimental crash data are examined to determine how vehicle rigidity influences seat belt operation. Total occupant braking distance is maximized when vehicle has high frontal deformation, as belt loading occurs at impact. Operation of seat belt takes place after a time lapse from beginning of deformation of vehicle. Optimum conditions occur when dead time between impact and seat belt loading is minimized and maximum

available braking distance is used.

Search terms: Seat belts, Braking distance, Vehicle design, Deformation, Impacts, Time factor, Crash injury data

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p188-200 (HS-004 429)

HS-004 437 Fld. 1/0,5/14

USE OF CONTOURED RESTRAINT SYSTEMS IN EXPOSURE OF LARGE PRIMATES TO -150 Gx IMPACT  
by R. W. Sonntag, Jr.,  
W. A. Newsom, S. D. Leverett, Jr., V. E. Keirtland

Report no. SAE-680778

Test with two chimpanzees indicates that whole body restraint system is more valuable impact protection than seat belts alone or shoulder harness alone.

Search terms: Laboratory animals, Restraint systems, Impact protection, Impact tolerance, Seat belts, Shoulder harnesses

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p201-6 (HS-004 429)

HS-004 438 Fld. 1/0,5/4,1/3

INJURY AND COLLISION SEVERITY  
by G. Murray Mackay  
Birmingham Univ., Warwick (England). Dept. of Transportation and Environmental Planning

Report no. SAE-680779

A method is given for correlating vehicle damage with injury severity, by comparison with damage in experimental impacts. Method is applied to vehicles damaged in urban and rural accidents in Britain. Injury severity

## 1/0 ACCIDENTS (Cont.)

HS 004-438 (Cont.)

varies with head on, corner, side, or rear end collisions, and illustrates value of lap diagonal seat belts. The effect of roof collapse on injury severity in rollover accidents is discussed. With better experimental data, different makes and models of cars could be assessed in terms of injury prevention.

Search terms: Accident severity, Collisions (accidents), Head on collisions, Rear end collisions, Side impact collisions, Seat belts, Rollover accidents, Crushing, Impact protection, Injury protection, Rural accidents, Urban accidents

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p207-19 (HS-004 429)

HS-004 439 Fld. 1/0,4/7,5/4

OCCUPANT RESPONSE VERSUS VEHICLE CRUSH: A TOTAL SYSTEM APPROACH  
by J. E. Thompson  
Chrysler Corp., Detroit, Mich.

Report no. SAE-680780

Designing vehicle structure to minimize restrained occupant responses to multicar collisions requires detailed study of vehicle-occupant system. Two mathematical models have been developed to allow such investigation. An operational computer program has also been developed. Validations of the occupant model and vehicle structure model will be supported by static load tests and two car vehicle crash data for the particular case of side impact. Program is concerned especially with controlling collapse of vehicular structure.

Search terms: Mathematical models, Vehicle design,

Restraint systems, Collisions (accidents), Computer programs, Side impact collisions, Static loads, Static tests, Crash research, Collapse, Occupant-vehicle interface, Structural design

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p220-39 (HS-004 429)

HS-004 440 Fld. 1/0,1/3,1/2

A DETAILED INJURY SCALE FOR ACCIDENT INVESTIGATION  
by D. J. Van Kirk, W. A. Lange  
Wayne State Univ., Detroit, Mich.

Report no. SAE-680781

A program at Wayne State University is described. Accidents are analyzed in detail and an injury scale with six categories devised: minor, moderate, moderate-severe, severe, critical, and fatal. Occupants' injuries can be classified, and index developed for each body area in terms of force to produce injury, accident severity predicted, and human tolerance data developed which will be useful in auto design.

Search terms: Injury severity, Injury research, Accident investigation, Collisions (accidents), Impact tolerance, Impact studies, Automotive design, Accident severity

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p240-59 (HS-004 429)

HS-004 441 Fld. 1/0,3/2

STATIC DEFORMATION AND VOLUME CHANGES IN THE HUMAN SKULL  
by L. M. Thomas, Y. Sezgin, V. R. Hodgson, L. K. Cheng, E. S. Gurdjian  
Wayne State Univ., Detroit, Mich.

Report no. SAE-680782

Impact tests with cadaver heads measured skull deflections, intracranial volume changes, and fracture patterns.

Search terms: Deformation, Cadavers, Fractures, Head injuries, Skull, Impact tests

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p260-70 (HS-004 429)

HS-004 442 Fld. 1/0,3/2

CHANGES IN PHYSICAL PROPERTIES OF BONE BETWEEN THE IN VIVO, FRESHLY DEAD, AND EMBALMED CONDITIONS  
by S. W. Greenberg, D. Gonzalez, E. S. Gurdjian, L. M. Thomas  
Wayne State Univ., Detroit, Mich.

Report no. SAE-680783

Knowledge of state of physical properties of cadavers is important if they are utilized for impact studies. Results of tests indicate less than 5% change from live to fresh condition. In embalmed wet condition stiffening averages around 8%. Drying of embalmed bone further increases stiffness about 24% and remoistening reconstitutes some of initial flexibility.

Search terms: Impact studies, Bones, Cadavers

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p271-9 (HS-004 429)

HS-004 443 Fld. 1/0,3/2,4/7

DYNAMIC RESPONSE OF THE HUMAN/CADAVER HEAD COMPARED TO A SIMPLE MATHEMATICAL MODEL  
by V. R. Hodgson, L. M. Patrick



## 1/0 ACCIDENTS (Cont.)

HS 004-443 (Cont.)

Wayne State Univ.,  
Detroit, Mich.

Report no. SAE-680784

A method is derived for comparing the impact response of a simple system to a general shaped pulse to that of the cadaver head. Under certain impact conditions it is found that a simple model responds to cadaver force-time input within 5% of cadaver occiput response over a broad range of pulse durations and acceleration levels. Ten conclusions are presented.

Search terms: Head injuries, Acceleration patterns, Mathematical models, Impact studies, Cadavers

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p280-301 (HS-004 429)

HS-004 444 Fld. 1/0,3/2

IMPACT TOLERANCE OF THE SKULL AND FACE  
by Alan M. Nahum,  
James D. Gatts, Charles W. Gadd, Gojrn Danforth  
California Univ., Los Angeles. School of Medicine and General Motors Research Labs., Warren, Mich.

Report no. SAE-680785

Forces necessary for fracture under localized loading have been obtained experimentally for a number of regions of the head. Three of these, the frontal, temporoparietal, and zygomatic, have been studied in sufficient detail to establish that tolerances are relatively independent of impulse duration, in contrast with tolerance of brain to closed-skull injury. Lower average strength

has been found for female bone structure. Includes brief reports on mandible, maxilla, and laryngotracheal cartilages of neck.

Search terms: Impact studies, Head injuries, Facial injuries, Fractures, Neck injuries

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p302-16 (HS-004 429)

HS-004 445 Fld. 1/0,3/2

APPLICATIONS OF EXPERIMENTAL HEAD INJURY RESEARCH  
by John M. Douglass,  
Alan M. Nahum,  
Sanford B. Roberts  
California Univ.,  
Los Angeles

Report no. SAF-680786

Head injury is largest single cause of auto accident deaths. The types of mechanisms of head injury are reviewed, and the findings of study on electrophysiology of concussion in monkeys presented.

Search terms: Head injuries, Injury severity, Injury research, Laboratory animals, Brain concussion, Accident severity, Electrophysiology, Fractures

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p317-37 (HS-004 429)

HS-004 446 Fld. 1/0,1/2

SOME FACTORS CONTRIBUTING TO HEAD AND NECK INJURIES DURING WHOLE BODY IMPACT USING GUINEA PIG SUBJECTS IN  $\pm G_x$  ORIENTATIONS  
by C. F. Lombard,  
W. A. Robbins,  
G. L. Potter  
Northrop Corporate Labs.,

Hawthorne, Calif.

Report no. SAE-680787

Various modes of head support systems were studied, using nonsurvivability and the incidence of cerebral hemorrhage as indexes of impact tolerance. Effects of impacts up to 600 G were studied at entrance velocities of 40, 60, and 80 feet per second. Head supports ranged from thin flat foam pads to contoured nonresilient foam support. At high G levels no additional protection seemed achievable. Neck is the weak link limiting tolerance and survival.

Search terms: Headrests, Cerebral hemorrhage, Impact tests, Neck injuries, Head injuries, Velocity, Impact tolerance, Laboratory animals

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p338-51 (HS-004 429)

HS-004 447 Fld. 1/0,4/7,5/14

THE INFLUENCE OF FASTENING ON THE IMPACT BEHAVIOR OF SAFETY GLASS  
by F. Bruckner,  
H. Krings  
Vereinigte Glaswerke,  
Mannheim (West Germany)

Report no. SAE-680788

With regard to forces of reaction caused by impact of a passenger against the fastened windshield, the different reactions of various types of safety glass are considered. Forces of reaction and reaction times must remain within human tolerance limits. New windshield systems are presented which take into account the human tolerance values of the cervical spine.

Search terms: Impact tolerance, Windshields, Impact tests, Head injuries, Spinal injuries,

## 1/0 ACCIDENTS (Cont.)

HS 004-447 (Cont.)

Laminated glass

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p352-9 (HS-004 429)

HS-004 448 Fld. 1/0,5/7,5/14

### A NEW HIGH-SAFETY GLAZING FOR AUTOMOBILES AND OTHER VEHICLES

by R. Van Laethem  
Glaverbel S. A.,  
Brussels (Belgium)

Report no. SAE-680789

A windshield made of two thin sheets of glass with high mechanical resistance and having thick plastic interlayer is described. Tests indicate it is superior to present materials in resistance to rupture and penetration, better visibility, and safety to occupants in case of impact. Testing conditions are described.

Search terms: Laminated glass, Glazing materials, Plastics, Impact protection, Head injuries, Windshields, Visibility

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p360-86 (HS-004 429).

HS-004 449 Fld. 1/0,4/7,5/14

### IMPACT AMPLIFICATION IN EUROPEAN COMPACTS

by Bertil Aldman, Arne Asberg  
Sweden. Statens Trafiksäkerhetsrad, Stockholm

Report no. SAE-680790

Response of a restrained car occupant to deceleration

patterns recorded at barrier impacts with European compact cars is studied by using a simple model in an analog computer. The general influence of restraint characteristics and slack is illustrated. Peak accelerations and total displacements of the occupant as a function of slack are given.

Search terms: European vehicles, Compact cars, Deceleration patterns, Barrier collisions, Analog computers, Restraint systems, Time factor, Mathematical models, Acceleration patterns

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p387-401 (HS-004 429)

HS-004 450 Fld. 1/0,4/7

### VEHICLE ACCELERATOR CRASH SIMULATOR

by L. M. Patrick, D. J. Van Kirk, G. W. Nyquist  
Wayne State Univ., Detroit, Mich. Dept. of Engineering Mechanics and Michigan State Univ., East Lansing

Report no. SAE-680791

Describes WHAM II (Wayne Horizontal Accelerator Mechanism) which accelerates and decelerates a sled or a modified auto on its own wheels. It has extensive safety features for operating personnel.

Search terms: Acceleration patterns, Deceleration patterns, Impact sleds, Impact tests, Test facilities, Crash simulation, Vehicle simulation

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p402-23 (HS-004 429)

HS-004 451 Fld. 1/0,3/2

### DYNAMIC RESPONSE OF THE HEAD AND NECK OF THE LIVING

### HUMAN TO -Gx IMPACT ACCELERATION

by Channing L. Ewing, Daniel J. Thomas, George W. Beeler, Jr., Lawrence M. Patrick, David B. Gillis  
Naval Aerospace Medical Inst., Pensacola, Fla. and Army Aeromedical Research Unit, Fort Rucker, Ala.

Report no. SAE-680792

Tests with acceleration sled. Volunteers wearing complete pelvic and upper torso restraint were subjected to increasing impact accelerations beginning at 2.7 g. Precision inertial transducers were used to determine linear and angular acceleration of head and first thoracic vertebra. High speed cameras were used to determine head and neck displacements. Trajectories were calculated by digital computer. Photographic data system is redundant.

Search terms: Acceleration tolerance, Impact tolerance, Head injuries, Neck injuries, Photography, Impact sleds, Pelvic restraint, Torso restraint, Digital computers, Transducers, Acceleration patterns

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p424-39 (HS-004 429)

HS-004 452 Fld. 1/0,4/7,5/14

### HUMAN MUSCULAR RESTRAINT DURING SLED DECELERATION

by Richard W. Armstrong, Hal P. Waters, J. P. Stapp  
National Bureau of Standards, Gaithersburg, Md. and National Highway Safety Bureau, Washington, D.C.

Report no. SAE-680793

Value of restraint by legs and arms has been disregarded in development of auto restraint systems. Tests made by 6571st Aeromedical Research Laboratory, Holloman Air Force Base, New Mexico, measured forces exerted on a foot rest during 15 g

## 1/0 ACCIDENTS (Cont.)

HS 004-452 (Cont.)

decelerations. For lap belt only, 26% of subject's kinetic energy absorbed was attributed to seat belt and 55% to restraint by legs. Consideration in auto design should be given to providing adequate means for bracing of subject with legs to take advantage of this restraint in crashes. Strength and design of steering wheel rims on which human makes some effort to restrain himself should be reexamined.

Search terms: Seat belts, Restraint systems, Kinetic energy, Steering wheels, Wheel design, Automobile design, Sleds, Deceleration patterns

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p440-62 (HS-004 429)

HS-810 022 Fld. 1/0

THE CHANGING CLIMATE IN ACCIDENT RESEARCH  
by William Haddon, Jr.  
National Highway Safety Bureau, Washington, D. C.

30 May 1967 18p  
Presented at the "Automobile Accident: Behavioral Issues and Approaches", sponsored by the American Psychological Association, Esalen Institute, Big Sur Hot Springs, California

Provides the theoretical basis for abandoning of the concept of "accident" and the implications of substituting categorizations based on energy exchange. Notes relationships between various forms of violence and their prevention, and the prevention of their results.

Search terms: Highway safety, Accidents, Research, Etiology,

Accident prevention, Speeches

AVAILABILITY: From corporate author

HS-810 023 Fld. 1/0

THE PREVENTION OF ACCIDENTS  
by William Haddon, Jr.

1967 31p  
Ch. 33 of PREVENTIVE MEDICINE, by Duncan W. Clark and Brian MacMahon (New York, Little, Brown, 1967) p591-621

Discusses motor vehicle safety in the context of prevention and amelioration of injury of all types.

Search terms: Accidents, Injury prevention, Motor vehicle accidents, Motor vehicle safety, Accident types, Human factors engineering, Bibliographies

HS-004 464 Fld. 1/0

AN INVENTORY OF ACCIDENTS, COSTS, AND SAFETY PROGRAMS IN THE MICHIGAN CIVIL SERVICE  
Anonymous  
Michigan. Civil Service Commission, Lansing

15 Feb 1965 24p

Summarizes the present situation in the state service for Michigan as it relates to accident costs, existing safety programs, and the nature of the accidents themselves. It is presented in four parts: (1) Duty-incurred illness and injury costs for state employees; (2) state agency safety programs; (3) accident inventory; (4) conclusions and recommendations.

Search terms: Safety programs, Accidents, Cost data, Insurance claims, Compensation, Injuries, Michigan, Traffic safety programs, Time factor,

Accident location, Causes, State government

AVAILABILITY: From corporate author

HS-810 043 Fld. 1/0

THE PRECRASH, CRASH, AND POSTCRASH PARTS OF THE HIGHWAY SAFETY PROGRAM  
by William Haddon, Jr.  
National Highway Safety Bureau, Washington, D.C.

13 Feb 1968 6p  
Report no. SAE-680237  
Presented at Joint Meeting, SAE South Texas Group & Bexar County Medical Society, San Antonio. Also presented at 11th Annual Meeting, American Association for Automotive Medicine, Philadelphia, 20 Oct 1967, and at Canadian Highway Safety Council's 14th Annual Conference, Victoria, B.C., Canada, 6 May 1968. (See, also, HS-810 034)

Emphasizes the importance of a systematic approach to highway loss prevention, including specific attention to the precrash, crash, and postcrash parts of the problem.

Search terms: Highway safety, Accident prevention, Crash phase, Speeches, Conferences, Meetings

AVAILABILITY: From NHSB

HS-810 045 Fld. 2/0,1/0

[HIGHWAY SAFETY]  
by William Haddon, Jr.  
National Highway Safety Bureau, Washington, D.C.

28 Nov 1967 13p  
Presented at the Annual Convention, Association of Minnesota Counties, Minneapolis

"On an average day, year in and year out, the highway casualties in the United States total over 10,000 injured." The circumstances surrounding the crash phases

## 1/0 ACCIDENTS (Cont.)

HS 810-045 (Cont.)

precrash, crash, postcrash-- are related to the seriousness of the problem and the roles played by the National Traffic and Motor Vehicle Safety Act and the Highway Safety Act of 1966.

Search terms: Meetings, Speeches, Conferences, Traffic accidents, Crash phase, Highway safety, Legislation, Safety laws

AVAILABILITY: From NHSB

HS-004 676 Fld. 1/0, 3/0

DISEASE CONTROL PROGRAMS. MOTOR VEHICLE INJURY PREVENTION PROGRAM Department of Health, Education, and Welfare, Washington, D. C.

Aug 1966 193p  
Report no. 1966-1

Motor vehicle accidents are considered a major health problem today. This report uses benefit-cost analysis to compare accident prevention and control programs. Some factors are: morbidity savings, reduction in driver drinking, injury avoidance, etc.

Search terms: Cost data, Motor vehicle accidents, Injury prevention, Benefit cost analysis\*, Driver licensing, Statistics\*, Accident research, Fatalities, Safety programs, Driver education, Emergency medical services, Drinking drivers, Pedestrian training, Seat belt usage\*, Motorcycle safety, Restraint systems

AVAILABILITY: From corporate author

HS-810 057 Fld. 2/0, 5/0, 1/0

VEHICLE SAFETY (HIGHWAY)  
by William Haddon, Jr.

National Highway Safety Bureau, Washington, D. C.

Outlines the problems and progress made in the highway safety field. Among the problems discussed are pedestrian and motorcycle safety, the better packaging of passengers, better steering wheels, windshields, and emergency medical services. Problems are divided into pre-crash, crash, and post-crash phases.

Search terms: Highway safety, Passenger packaging, Crash research, Windshields, Steering wheels, Pre-crash phase, Crash phase, Post-crash phase, Motorcycle safety, Pedestrian safety, Emergency medical services

AVAILABILITY: In DEPARTMENT OF TRANSPORTATION INTRA-DEPARTMENTAL SAFETY SEMINAR (1ST). PROCEEDINGS, p99-118 (HS-810 055)

HS-005 197 Fld. 1/0

SAFETY RULES FOR HANDLING CHEMICAL SPILLS ON THE ROADWAY

California. Bureau of Occupational Health, Berkeley

Published in *Go-Transport Times of the West* v28 n11 p25 (Nov 1968)

Do's and don'ts when handling spills of identified and unidentified chemicals on the highway.

Search terms: Chemicals\*; Hazardous materials\*; Safety measures; Accident protection; Accident surveillance

HS-820 030 Fld. 1/0; 2/0; 3/0; 5/0  
HIGHWAY SAFETY LITERATURE. COMPILATION OF ISSUES NUMBERED 1 THRU 52 ISSUED DECEMBER 1967 THRU DECEMBER 1968

National Highway Safety Bureau, Washington, D.C.

Jul 1969 411p

Contains HS-000 001-HS-004 302; HS-800 001-HS-800 052. For index to this volume by current subject categories see HS-820 052.

This publication brings together all citations appearing in *Highway Safety Literature's* first 52 issues from December 1967 through December 1968. The annotated citations appear under five broad categories with 53 subdivisions, reflecting the Bureau's safety standards and research interests.

Search terms: Highway safety; Motor vehicle safety; Human behavior; Motor vehicle accidents; Bibliographies

AVAILABILITY: CFSTI

HS-006 042 Fld. 1/0; 3/0

TRAFFIC "ACCIDENTS", A MEDICAL VIEWPOINT. PART 1

by Julian A. Waller

Published in *Automotive Industries* v136 n8 p87-90 (15 Apr 1967)

Severe accidents are discussed in three major aspects: (1) when the involved drivers or pedestrians frequently have identifiable impairment as alcoholism; (2) the frequent inadequacy of the packaging of the fatally injured as automobile defects and lack of protective clothing; and (3) location of the accident where early and adequate assistance may be available only by chance.

Search terms: Traffic accidents; Pedestrian accidents; Fatalities; Protective clothing\*; Motor vehicle safety; Accident severity; Injuries; Handicapped drivers; Alcoholism; Medical factors; Diseases; Packaging; Motor vehicle design; Drinking drivers; Defective vehicles; Accident location; Emergency medical services

HS-006 043 Fld. 1/0; 3/0

TRAFFIC "ACCIDENTS", A MEDICAL VIEWPOINT PART 2

by Julian A. Waller

Published in *Automotive Industries* v136 n10 p92-4 (15 May 1967)

Interactions of the laws of sociology, psychology, and physiology as factors in accident occurrence are covered in detail. Countermeasures suggested to reduce accident toll include the removal of impaired drivers from the road, utilization of a different system of transportation, modification of

## 1/0 Accidents (Cont.)

### HS-006 043 (Cont.)

training and driver behavior, modification of environment to simplify driver tasks, and improvement of emergency medical services.

Search terms: Traffic accidents; Human behavior; Packaging; Driving tasks; Sociological aspects; Psychological aspects; Physiology; Accident factors; Driver education; Emergency medical services; Accident severity; Pedestrian accidents; Alcoholism; Handicapped drivers; Drinking drivers; Medical factors; Violations; Accident research

## 1/1 EMERGENCY SERVICES

HS-004 336 Fld. 1/1

CAUSES OF DEATH AFTER SEVERE TRAUMA: AN ANALYSIS OF 298 CONSECUTIVE MEDICO-LEGAL AUTOPSIES IN AN ACCIDENT HOSPITAL

by P. Rokkanen, P. Slatis

Published in *Annales Chirurgiae et Gynaecologiae Fenniae* v56 p313-18 (1967)

Of 298 fatal casualties, 61% were traffic accident victims. Leading causes of death within 24 hours were head, chest, abdomen, pelvic, and spinal injuries. Later deaths were largely due to complications, especially of head injuries. Time of survival was influenced by type of accident, location of injury, and number of multiple injuries.

Search terms: Fatalities; Autopsy; Accidents; Head injuries; Chest injuries; Abdomen injuries; Pelvic injuries; Spinal injuries; Traumata; Forensic medicine; Hospitals; Traffic accidents;

HS-044 343 Fld. 1/1

SYMPOSIUM ON ROAD ACCIDENTS

by Patrick C. Carey

Published in *Journal of the Irish Medical Association* v53 p88-9 (Sep 1963)[

From a hospital point of view, accident problem needs a central organization to review services and reduce number of casualty departments. Major units should be formed in zoned areas and should be adequately staffed at all times. Many accident victims are so seriously injured that reliance on junior resident staff for their emergency room care is inadequate.

Search terms: Emergency medical services; Crash injuries; Coordination; Planning; Medical

emergencies; Hospitals; Care of injured; Traffic accidents

HS-004 368 Fld. 1/1

THE DANISH ACCIDENT AMBULANCE

by S. Ua Conchubhair

Published in *Journal of The Irish Medical Association* v53 p93 (Sep 1963)

Describes an ambulance meant to give seriously ill person a comfortable ride and facilities for treatment en route, and equipped to take care of the unconscious and to deal with bleeding and fractures. It is built on Ford chassis, has stretcher convertible into trolley with shaft for towing.

Search terms: Ambulances, Care of injured, Fractures, Hemorrhage, Medical emergencies

HS-004 395 Fld. 1/1

BLOOD-GAS ANALYSES IN UNCONSCIOUS NEUROSURGICAL PATIENTS ON ADMISSION TO HOSPITAL

by Noe Naeraa

Published in *Acta Anaesthesiologica Scandinavica* v7 p191-9 (1963)

Respiratory function was studied clinically and by analyses of arterial or capillary blood in 44 patients immediately on admission to hospital. 21 had abnormal blood-gas volumes, of whom 13 had signs of impaired respiratory function. Pathology and treatment outlined. Some of the patients were auto accident victims.

Search terms: Blood gas analysis, Respiratory system, Neurophysiology

HS-004 396 Fld. 1/1

ROAD ACCIDENTS

by Norman Capener

Published in *Annals of the Royal College of Surgeons of England* v39 p158-60 (Sep 1966)

Discusses the highway accident toll in Great Britain from the point of view of emergency medical care. Too many small hospitals are not equipped to care for seriously injured patients. Both staff and buildings need improvement. Ambulance service is also inadequate.

Search terms: Emergency medical services, Hospitals, Great Britain, Care of injured, Ambulances, Motor vehicle accidents

HS-004 397 Fld. 1/1, 1/2

TRAUMATIC RUPTURE OF THE AORTA

by I. E. Langbein, P. W. T. Brandt

Published in *Australian Radiology* v12 p102-8 (May 1968)

Six cases are described, all auto accident victims. Prompt diagnosis and surgical repair are necessary.

Search terms: Chest injuries, Rupture, Surgery, Aorta, Diagnosis

HS-810 024 Fld. 1/1

THE POSITION OF EMERGENCY MEDICAL SERVICES IN SYSTEMS FOR RESPONSE TO EMERGENCIES OF ALL TYPES

by William Haddon, Jr. National Highway Safety Bureau, Washington, D.C.

18 Jan 1968 12p

Presented at "The Community and Emergency Medical Services," Sponsored by the Commission on Emergency Medical Services, American Medical Assoc., San Francisco, Calif.

Emphasizes the emergency response systems must be built on appropriate capability for: signal generation, communications, command and control activities, transport-

## 1/1 Emergency Services (Cont.)

HS 810-024 (Cont.)

tation, and the capability to superimpose appropriate medical and other resources as necessary for a particular situation. Also emphasizes that medical response systems must be part of overall systems for responses to social disruptions of all types.

Search terms: Emergency medical services, Emergency services, Standards, Legislation, Speeches

AVAILABILITY: From corporate author

HS-004 465 Fld. 1/1,4/2

EMERGENCY CARE AND TRANSPORT OF THE INJURED  
by Roswell K. Brown

Published in Journal of Medical Association of Georgia v56 p467-73 (Nov 1967)

Reviews emergency care service from several aspects: ambulances, personnel, vehicle equipment, communications. Summarizes deficiencies in current services. Recommends an Emergency Care Council for each community and a Committee on Emergency Care for each medical society within an area to re-establish lines of cooperation.

Search terms: Care of injured, Community support, Emergency medical services, Ambulances, Injuries

HS-004 466 Fld. 1/1

HIGHWAY ACCIDENT CARE  
by W. S. Reid

Published in Manitoba Medical Review v45 p19-20 (Jan 1965)

Recommended medical management at the site includes: (1) triage; (2) maintenance of airway; (3) control of hemorrhage; (4) treatment of shock; (5) selective administration of narcotics;

(6) positioning for transportation; (7) medical history taking. Releasing trapped victims also discussed.

Search terms: Emergency medical services, Ambulances, First aid

HS-004 467 Fld. 1/1

THE IMMEDIATE CARE OF ROAD TRAFFIC AND TRACTOR CASUALTIES IN A RURAL AREA  
by W. Dewi Rees

Published in Journal of Royal College of General Practitioners v15 p115-22 (Feb 1968)

Details are given of the local management, methods of transport and ultimate disposal of people injured in motor vehicle accidents in a relatively isolated rural area in Britain. Seventy-three per cent of the people fatally injured were found dead at the site of accident, 27 per cent died in hospital, and there were no deaths in transit.

Search terms: Emergency medical services, Rural areas, Care of injured, Traffic accidents, Farm tractors, Motor vehicle accidents, Fatalities, Great Britain

HS-810 044 Fld. 1/1

THE ROLE OF THE NATIONAL HIGHWAY SAFETY BUREAU IN RELATION TO STATE AND COMMUNITY EMERGENCY SERVICE  
by William Haddon, Jr.  
National Highway Safety Bureau, Washington, D. C.

6-7 Apr 1967 7p  
Presented at the American Medical Association's Conference on Emergency Medical Services, Chicago

Many of those injured in traffic accidents die needlessly because they do not receive prompt and proper emergency medical care. This talk relates

the responsibilities of the Highway Safety Act to activities and standards required for the states to improve emergency medical services.

Search terms: Legislation, Emergency Medical Service, State government, Speeches, Conferences, Meetings, Highway Safety Act of 1966

AVAILABILITY: From NHSB

HS-004 498 Fld. 1/1

HIGHWAY INJURIES  
by Stanley A. Hill

Published in Southern Medical Journal v59 n7 p870-1 (Jul 1966)  
Editorial

Urges the medical profession to step up safety propaganda. Details the kind of emergency medical services which should be available to highway accident victims. More efficient use of both the knowledge and equipment now available could be made. Better treatment and equipment need to be developed.

Search terms: Emergency medical services, Motor vehicle accidents, Safety propaganda, Medical treatment, Medical emergencies, Crash injuries, Care of injured, Editorials\*

HS-004 555 Fld. 1/1

THE EARLY MANAGEMENT OF THE SEVERELY INJURED  
by R. S. Garden

Published in Journal of Neurology, Neurosurgery and Psychiatry v30 p587-8 (Dec 1967)

Outlines hospital organization to treat 2,000 auto accident cases yearly. Treatment of the gravely injured depends largely on organization of an accident service with at least two full-time medical officers on duty at all times. Ambulance workers are integral part of the team

## 1/1 Emergency Services (Cont.)

HS 004-555 (Cont.)

and are given regular lectures with particular emphasis on the importance of maintaining the airway; 36% of those dead on arrival had clogged respiratory passages.

Search terms: Emergency medical services, Medical emergencies, Care of injured, Ambulances, Respiratory system, Aspiration\*, Airway maintenance\*, Automobile accidents, Multiple injuries\*, Injuries

HS-004 556 Fld. 1/1

LOUISIANA STATE MEDICAL SOCIETY: CONFERENCE ON THE MEDICAL ASPECTS OF AUTOMOTIVE SAFETY

Anonymous

Published in Journal of the Louisiana State Medical Society v119 n9 p331-2 (Sep 1967)

Outlines the Louisiana State Medical Society's campaign for better automotive safety. Includes accident causes, better emergency medical services, better driver training and licensing standards.

Search terms: Emergency medical services, Accident causes, Highway safety, Driver education, Driver license standards, Louisiana\*, Louisiana State Medical Society\*

HS-004 557 Fld. 1/1

MEDICAL FIRST-AID AT THE ACCIDENT SITE  
by William Gissane

Published in Journal of the Philippine Federation of Private Medical Practitioners v13 n12 p783-8 (Dec 1964)

Every doctor should give first aid at the site of an accident when a condition threatening life is present and should keep in his car a kit for this purpose. The

percentage of fatalities due to asphyxia or circulatory failure by the roadside or during transport to hospitals could be significantly reduced. A list of 18 items needed for a doctor's first aid kit is included.

Search terms: Physicians\*, Care of injured, First aid, Medical emergencies, Emergency medical services, Fatalities, Cardiovascular system, Asphyxia\*, Motor vehicle accidents

HS-004 558 Fld. 1/1

NEEDED: FIRST AID FOR AMBULANCE SERVICES  
by Irwin Ross

Published in Reader's Digest v90 p98-102 (Feb 1967)

Deplores the quality of most ambulance services, the lack of first aid training for their personnel. Suggests legal regulation of ambulance services. Praises the quality of service in Chicago, where emergency ambulances are housed in neighborhood firehouses and are thus spotted throughout the city, and in Louisville, where police station wagons are used as ambulances. In these cases firemen and policemen have been trained in first aid.

Search terms: Emergency medical services, Ambulances, First aid, Police, Firemen\*, Legal factors

HS-004 559 Fld. 1/1

ONE YEAR'S EXPERIENCE IN THE ANESTHETIC MANAGEMENT OF TRAUMA, 1964  
by H. Carolyn Crighton, A. H. Giesecke

Published in Anesthesia and Analgesia v45 n6 p835-42 (Nov-Dec 1966)

A historic survey and an analysis of 1,161 cases requiring anesthetic and surgical management of emergency trauma at Parkland Memorial Hospital, Dallas, are presented. Many were

traffic accident victims. Management of cases is outlined, and statistics given on ages, types of injury, and anesthetics given.

Search terms: Traffic accidents, Surgery\*, Injuries, Age factor in accidents, Anesthetics\*

HS-004 616 Fld. 1/1

MOBILE INTENSIVE CARE IN MYOCARDIAL INFARCTION  
by R. J. Kernohan, R. B. McGucken

Published in British Medical Journal v3 n5611 p178-80 (20 Jul 1968)

An ambulance equipped as an intensive care unit has been used for a rural area in Northern Ireland, with a radius of about 25 miles from the hospital. In six months it has answered 164 calls and on the average can provide intensive care in less than 30 minutes. The cost and use of skilled staff have been justified by the results.

Search terms: Ambulances, Medical emergencies, Heart injuries, Northern Ireland\*, Myocardial infarct\*, Emergency medical services, Automobile accidents

HS-004 634 Fld. 2/9,1/1

TRAFFIC CONTROL ON MOTORWAYS  
Anonymous

Published in Roads and Road Construction p302 (Oct 1966)

Describes a small truck used by police as an accident emergency unit. It carries large illuminated accident signs, traffic directing signs, first aid box and blankets, hand lamps, flares, crowbar, fluorescent coats, reflecting cones, two way radio, and public address equipment.



## 1/1 Emergency Services (Cont.)

HS 004-634 (Cont.)

Its purpose is to get to accident scene quickly and reduce hazard of multiple pile-ups.

Search terms: Traffic control devices, First aid, Lighting equipment, Warning systems, Emergency vehicles, Public address systems\*, Highway communication, Communication systems\*, Accident surveillance, Signs (displays), Accident risks, Police traffic services

HS-004 677 Fld. 1/1,2/2

FREE PHONES AID MOTORISTS ON FREEWAY  
Anonymous

Published in Rural and Urban Roads v7 n2 p48,49 (Feb 1969)

This emergency communication service (700 telephone boxes serving 178 miles) provides a free service connected with the New York State Police patrol. Motorists using NETS (Northway Emergency Telephone Service) may request fire vehicles, ambulances, towing, gasoline and tire services.

Search terms: Telephones\*, Highway communication, Motorist aid systems\*, Emergency services, Rural areas, Freeways, Northway Emergency Telephone Service\*

Care of injured, Motor vehicle accidents

HS-004 859 Fld. 1/1

INTEREST IN AIR AMBULANCE USE INCREASES  
by Nieson S. Himmel

Published in Aviation Week & Space Technology v90 n12 p71-2,77-8 (24 Mar 1969)

Describes usage of helicopters as ambulances, often by highway patrols, police and fire departments. Various helicopter models are discussed with emphasis on the time needed to convert them from ordinary usage to ambulance usage. Lists communities and organizations using the modified helicopters.

Search terms: Helicopters, Time factors\*, Ambulances, Emergency medical services

HS-005 006 Fld. 1/1

HELICOPTER EVACUATION OF HIGHWAY INJURIES  
by Edward R. Jenkins

Published in GP (General Practice) v38 n6 p151-2 (Dec 1968)

Helicopters offer the best solution for rapid evacuation of accident victims from remote areas to emergency care facilities. In California, more than 50% of traffic deaths occur in unincorporated areas where prompt emergency care is not available. Plans for helicopter ambulances and radio communications for use in California are outlined.

Search terms: Ambulances, Helicopters, Fatalities, Emergency medical services, Radio communication\*, Rural accidents, Motor vehicle accidents, California\*

HS-004 678 Fld. 1/1

HANDLING OF EMERGENCY CASES  
by Robert H. Kennedy

Published in Archives of Environmental Health v13 n4 p511-15 (Oct 1966)

Problem areas in handling accident emergency care patients are discussed: function of the ambulance and its attendants, types of service, equipment, personnel, training and legislation.

Search terms: Ambulances, Emergency vehicles, Emergency medical services

HS-004 801 Fld. 1/1

WHIRLIBIRDS TO THE RESCUE  
Anonymous

Published in American Motorist v36 n9 p12-3 (Jan 1968)

Describes the use of helicopters for evacuating wounded and injured persons in Vietnam and suggests that the same kind of service should be available for highway accident victims. Almost three-fourths of fatalities happened on stretches of highway far from first aid, adequate communication, and adequate medical facilities, and even in cities most ambulance service is of poor quality.

Search terms: Helicopters, Ambulances, Emergency medical services, First aid, Accident location, Communication systems\*,

HS-005 007 Fld. 1/1,4/2

TRUCK HITS SCHOOL BUS: A PRACTICAL LESSON IN

## 1/1 Emergency Services (Cont.)

HS-005-007 (Cont.)

COMMUNITY DISASTER PLANNING  
by John A. Hampsey

Published in *Pennsylvania  
Medicine* v70 n5 p107-9  
(May 1967)

Describes an accident which provided a good test of a community's disaster planning. The accident was well handled with cooperation among police, fire department, and hospital emergency room which was notified how many casualties to expect. It is recommended that those making disaster plans should "think small," since ten casualties at the same time will constitute a disaster in most hospitals. Good management at the accident site is also recommended instead of "siren-screaming chaos."

Search terms: Disasters, Police, Fire fighting equipment, Hospitals\*, Emergency medical services, Care of injured, School buses, Truck accidents, Motor vehicle accidents, Medical emergencies, Community support

HS-005 050 Fld. 1/1

### HIGHWAY HELICOPTERS HOSPITAL HELIPORTS—PARTNERS IN PROGRESS

by Jean Ross Howard

Published in *Rotor & Wing* v1 n2 p44-49, 61 (Jul 1967)

Rescue capabilities of helicopters for emergency services are detailed. Basic requirements, cost range (from \$100 for a sod surface to \$30,000 for paved, lighted facility) are given. State-federal cooperative effort in establishing heliports at hospital sites is recommended.

Search terms: Helicopters, Ambulances, Heliports\*, Emergency medical services, Highway safety, Federal-state relationships, Standards, Hospitals\*, National Highway Safety Bureau\*

HS-005 095 Fld. 1/1

### THE GRIM STATE OF EMERGENCY MEDICAL SERVICES

by Howard Pyle

National Safety Council, Chicago, Ill.

Published in *Traffic Safety* v69 n2 p6-7, 32 (Feb 1969)

Many highway accident victims die because of inadequate emergency services. Recommends a program to include training for ambulance personnel, standards for the vehicles and their equipment, criteria for two-way communication systems, and a comprehensive plan for the management of emergency medical services. Discusses federal and other standards for such services.

Search terms: Emergency medical services, Care of injured, Ambulances, Fatalities, Communication systems\*, Standards, Motor vehicle accidents

HS-005 096 Fld. 1/1

### EMERGENCY CARE OF THE ILL AND INJURED

by Jack Wickstrom

Published in *Journal of the Louisiana State Medical Society* v119 n9 p362-4 (Sep 1967)

Thousands of lives could be saved by better care for road accident victims. Especially needed are better designed and equipped ambulances, with communication equipment, and better training for ambulance crews. Emergency rooms are not as well organized and equipped as they should be. Physicians should exert their influence to correct these deficiencies.

Search terms: Emergency medical services, Ambulances, Hospitals\*, Physicians\*, Care of injured, Motor vehicle accidents, Communication systems\*

HS-005 198 Fld. 1/1

### THE CARE AND TRANSPORTATION OF THE SEVERELY INJURED. A PROPOSAL

by James F. Newsome; Robert Price

Published in *North Carolina Medical Journal* v29 n10 p416-9 (Oct 1968)

Suggestions for improving North Carolina's emergency medical services include: establishment of regional trauma centers; use of helicopters in addition to ambulances for rapid transport of accident victims; a state-wide communications network for medical services; and comprehensive training of ambulance attendants in proper care of injured, particularly positioning patient properly, adequate airway maintenance, stopping flow of blood, splinting of fractures, and carrying out other resuscitative efforts.

Search terms: North Carolina\*; Helicopters; Ambulances; Emergency medical services; First Aid; Communication systems\*; Care of injured; Motor vehicle accidents; Accident location; Rural areas; Medical treatment; Injuries; Airway maintenance\*; Hospitals\*; Fractures\*; Resuscitation\*; Hemorrhage\*

HS-005 199 Fld. 1/1

### "THE HOT-LINE": A UNIQUE AMBULANCE-EMERGENCY ROOM COMMUNICATION SYSTEM

by Carl Jelenko; George H. Yeager

Published in *Journal of Trauma* v8 n6 p1102-4 (1968)

A unique private, nondialing direct telephone communication system which connects the ambulance dispatcher to the emergency room in 13 of the major hospitals in Baltimore provides prior warning of arrival of the severely injured or ill. A representative case is presented. Cost averages 30 cents per day.

Search terms: Ambulances; Emergency medical services; Telephone\*; Hospitals\*; Case reports\*; Maryland\*; Communication systems\*; Automobile accidents

HS-005 200 Fld. 1/1

### IMPROVING THE ACCIDENT VICTIM'S CHANCES. RADIO PLUS COMPUTER PLUS HELICOPTER

Anonymous

Published in *Public Safety Systems* v34 n1 p16-7 (Jan-Feb 1969)

## 1/1 Emergency Services (Cont.)

HS-005-200 (Cont.)

Describes a Nebraska project using helicopters to transport accident victims. The victim's condition is radioed to a computer during transport to the hospital. Emergency care instructions can be returned to the helicopter while it is in flight.

Search terms: Emergency medical services; Computers; Helicopters; Nebraska\*; Care of injured; Motor vehicle accidents; Radio communication; First Aid

HS-800 080 Fld. 1/1

### METHODS FOR SURVEYING HIGHWAY EMERGENCY MEDICAL SERVICES

Stanford Research Inst., Menlo Park, Calif.

1968 304p  
Contract FH-11-6554  
Report no. PB-178 231

A data system suitable for assessing emergency medical services and upgrading them must have the capacity to measure their demand, performance, and basic capabilities, while reflecting their existing organization. Case studies in four states indicated need for comprehensive data gathering, organization at the state and local level. An eight-step program is suggested, beginning with the establishment of state-level organization and concluding with the establishment of procedures for periodic evaluation of emergency medical services.

Search terms: Emergency medical services; Accident data; Accident reports; Data acquisition; Administrative procedures; Hospitals; Injuries; Motor vehicle accidents; Information systems; State government; Ambulances; Field tests; Liability

AVAILABILITY: CFSTI as PB-178 231

HS-800 081 Fld. 1/1

### EMERGENCY MEDICAL SERVICES SURVEY AND PLAN DEVELOP-

### MENT. PRELIMINARY GUIDANCE DOCUMENT

Stanford Research Inst., Menlo Park, Calif.

1968 209p  
Contract FH-11-6554  
Report no. PB-178 232

The purpose of this guidance document is to assist states in complying with the federal standard on emergency medical services. Specific attention is given to the requirements of a comprehensive state program and to organizational procedures. An eight-step program is suggested.

Search terms: Emergency medical services; Standards; State government; Administrative procedures; Accident data; Hospitals; Injuries; Motor vehicle accidents; Data acquisition; Accident reports; Local government; Field tests; Data processing; Information systems

HS-005 378 Fld. 1/1; 1/2

### VEHICLE ACCIDENTS: IMMEDIATE CARE TO BACK INJURIES

by Louis C. Kossuth

Published in *Journal of Trauma* v6 n5 p582-91 (1966)

Examines the problem of giving immediate care to back injuries incurred in vehicle accidents. The use of splints and other equipment is described. Types of back injuries suffered in vehicle accidents are discussed.

Search terms: Back injuries; Care of injured; Splints\*; Medical treatment; First aid; Motor vehicle accidents

HS-005 379 Fld. 1/1

### HELP IS A HELICOPTER

by Morton J. Schultz

Published in *Today's Health* v47 n4 p20-3, 72-3 (Apr 1969)

Describes the use of helicopter ambulances for accident victims. Critically injured persons can be saved, especially when a doctor-nurse team goes with the helicopter. Helicopters are also useful for getting help to injured persons in remote areas.

Search terms: Helicopters; Ambulances; Care of injured; Emergency

medical services; Motor vehicle accidents

HS-005 479 Fld. 1/1

### THE POLICEMEN AT THE SCENE OF THE ACCIDENT

by Claude R. Hitchcock

Published in *Police* v13 n3 p16-9 (Jan-Feb 1969)

Customarily police officers are the first legally responsible people to arrive at the accident scene. Their ability to act quickly and effectively may make the difference between life or death for a crash victim. First aid procedures are outlined.

Search terms: Emergency medical services; Care of injured; Police; First aid; Accident factors

HS-820 035 Fld. 1/1

### ECONOMICS OF HIGHWAY EMERGENCY AMBULANCE SERVICES

National Highway Safety Bureau, Washington, D.C.

Mar 1969 67p

Condensation of Dunlap and Associates, Inc. final report on Contract FH-11-6541, *Economics of Highway Emergency Ambulance Services*, v1:HS-003 295 (PB-178 837), v2:HS-003 296 (PB-178 838).

Outlines the status of emergency ambulance services; their costs; the advantages and disadvantages of commercial, hospital, municipal, and volunteer ambulance services; the impact of safety standards and legislation; the outlook for helicopter ambulances. Presents seven conclusions and recommendations for better ambulance service, emphasizing the need for community planning, subsidies to small communities, and good organization and management of ambulance services.

Search terms: Emergency medical services; Costs\*; Ambulances; Helicopters; Safety standards; Community support; Hospitals\*; Legislation

AVAILABILITY: GPO \$0.65

## 1/1 Emergency Services (Cont.)

HS-005 565 Fld. 1/1

### HELICOPTERS EXPAND HOSPITAL SERVICE AREA

by Jean Ross Howard

Published in *Modern Hospital* v105 n5 p99-104 (Nov 1965)

Suggests that hospitals should have heliports so that auto accident victims can be brought to emergency rooms more promptly. Outlines the cost, size, and operations of the 34 hospital heliports already in use.

Search terms: Emergency medical services; Hospitals\*; Helicopters; Care of injured; Automobile accidents; Costs\*; Heliports\*

HS-005 607 Fld. 1/1

### AN INFLATED "AIRLITTER" FOR TRANSPORTATION AND IMPACT PROTECTION OF THE INJURED. FINAL REPORT

by Carl Blechschmidt; Carl Clark

Martin Co., Baltimore, Md.

Jan. 1966 32p 11 refs.

Contract NASw-877;

Report no. ER-14109

Report on the Airlitter addendum to Pilot Compartment Airbag Restraint System.

Describes a 3 x 3 x 8 foot boxlike unit which unzips to provide two beds. It is made of rubberized fabric and contains upper and lower full length airbags and head and foot end bags. A drop test showed that an occupant could survive a 30 foot fall in it. It can be transported on rough surfaces and stacked in piles. It is useful for helicopter ambulances.

Search terms: Ambulances; Helicopters; Airlitters\*; Impact protection; Care of injured

AVAILABILITY: Corporate author

HS-005 608 Fld. 1/1

### HOT WIRES: THE HOWS AND WHYS; THE DO'S AND DON'TS

by Sherman R. Knapp

Published in *FBI Law Enforcement Bulletin* v38 n5 p2-6 (May 1969)

Informs the law enforcement officer of the hazards and procedures involved in an electric power emergency where there is a fallen or dangerous wire. Includes problems caused by auto accidents such as striking utility poles. Rules, rescue aids, and techniques for lifting a fallen wire are given.

Search terms: Police; Emergency services; Accidents; First aid; Automobile accidents; Utilities\*; Power; Poles (supports); Rescue operations\*

HS-005 609 Fld. 1/1

### EMERGENCY HIGHWAY TRAFFIC REGULATION TRAINING REQUIREMENTS FOR HIGHWAY DEPARTMENTS

by William A. Ordway; Carl W. McPherson

Published in *American Highways* v48 n2 p. 32-4 (Apr 1969)

Emergency Highway Traffic Regulations would be used in case of nuclear attack. About 100,000 persons should be trained to carry out operations under this plan. A national team would train state officials, who in turn would train their staffs.

Search terms: Community support; Emergency services; State planning; Federal-state relationships\*; National defense\*; Highway Administration; Traffic regulations\*; State government

HS-005 728 Fld. 1/1

### THE POLICE AND THE AMBULANCE

by Donald P. Burke

Published in *Aid (Journal of the Ambulance Association of America)* v3 n6 p6, 8-9 (Nov-Dec 1965)

Outlines a course in ambulance and first aid training for police officers. It includes both classroom training and demonstrations with ambulances and their equipment. Police with this training can help prevent deaths and disabilities to auto accident victims.

Search terms: Automobile accidents; Emergency medical services; Ambulances; Police; First aid;

Fatalities; Care of injured; Curricula\*; Pomona\*

HS-800 155 Fld. 1/1

### EXTRICATION METHODS AND AMBULANCE OPERATIONAL GUIDELINES. FINAL REPORT. PART 1, EXTRICATION METHODS

Autonetics, Anaheim, Calif.

Apr 1969 456p 34 refs

FH-11-6943

Report no. C9-592/037-Vol-1

The purpose of this study was to determine the range of techniques and devices needed for extricating victims of automobile crashes. The major emphases of the study have been related to gaining access to the victims, disentangling machinery from around them, preparing them for removal, and removing them to the ambulance. The study also required the development of a training manual for the use of extrication equipment and emergency medical treatment. Recommendations are presented to provide a basis for emergency rescue services performing extrication activities. An attempt has been made to find a pattern in extrication problems in order to determine what procedures and equipment are basic. Little has been published on this problem, and suggestions for further study are given.

Search terms: Post-crash phase; Ambulances\*; Emergency medical services; Emergency equipment\*; Rescue operations\*; Care of injured; First aid; Automobile accidents; Access to crash scene; Accident factors; Accident data; Interviews\*; Extraction\*; Questionnaires\*; Injury factors; Emergency services; Deformation; Debris removal; Systems analysis; Personnel\*; Administrative procedures

AVAILABILITY: CFSTI as PB-184 904

HS-800 156 Fld. 1/1

### EXTRICATION METHODS AND AMBULANCE OPERATIONAL GUIDELINES. FINAL REPORT. PART 2, AMBULANCE OPERATIONAL GUIDELINES

Autonetics, Anaheim, Calif.

Apr 1969 115p 85 refs

Contract FH-11-6943

## 1/1 Emergency Services (Cont.)

HS-800-156 (Cont.)

Report no. C9-592/037-Vol-2

This volume contains an analysis of representative ambulance operational functions and tasks, identification of ambulance operational personnel and their inter-relationships, and development of ambulance operational guidelines. A field tested performance model and a related criticality scale are included.

Search terms: Extraction\*; Ambulances\*; Emergency equipment\*; Emergency medical services; Rescue operations\*; Care of injured; First aid; Post-crash phase; Automobile accidents; Accident factors; Systems analysis; Models; Questionnaires\*; Personnel\*; Administrative procedures; Field tests

AVAILABILITY: CFSTI as PB-184 905

HS-005 861 Fld. 1/1

### THE UCLA EMERGENCY MEDICAL CARE PROJECT

by Eugene P. Durbin

Published in *Traffic Digest and Review* v17 n5 p3-7 (May 1969)

To provide community planners with data of value in choosing among emergency care alternatives, the UCLA project is studying factors such as the effectiveness of helicopters as ambulances, ambulance operations, ambulance attendant training, equipment, communications, the need for a collection of research data, and cost information. A computer simulation of a general emergency care system has been developed. Los Angeles is serving as a test area in the project.

Search terms: Emergency medical services; Ambulances\*; Helicopters; First aid; Motor vehicle accidents; Computerized simulation; Communication systems\*; Rescue operations\*; Data acquisition; Costs\*; Los Angeles\*; Emergency equipment\*

HS-005 930 Fld. 5/0; 1/1; 2/9

### THE DETROIT CITIZENS BAND RADIO DRIVER AID NETWORK

by Herbert J. Bauer; Clark E. Quinn  
General Motors Research Labs.,  
Warren, Mich.

10p

System is used to report unsafe conditions on the city's roads, vehicular accidents, stalled cars, inoperative signal lights. Direct contact with law enforcement and other city services is available. The reports are recorded on computer cards from which many types of data analysis can be done.

Search terms: Traffic data analysis; Accident reports; Signal lights; Emergency services; Communication systems\*; Data processing; Radio communication\*; Driver aid, information and routing\*

AVAILABILITY: Paper 27 in General Motors Proving Ground, PROC. OF AUTOMOTIVE SAFETY SEMINAR, 11-12 Jul 1968 (HS-005 901)

HS-800 157 Fld. 1/1

### AMBULANCE DESIGN CRITERIA

National Academy of Engineering, Washington, D.C. Committee on Ambulance Design Criteria

30 Jun 1969 58p 30 refs  
Contract FH-11-6959

Prepared in cooperation with the Highway Research Board, Washington, D.C.

Engineering design criteria for emergency vehicles have been determined. Criteria will include medical equipment, service required, type of terrain in which vehicles will be used, and safety characteristics. Present ambulances can be modified to meet these performance standards in part, and new ones should incorporate these criteria. Driver and patient compartments, conditions the ambulance should be prepared to deal with, supplies it should carry, and design of the vehicle are described.

Search terms: Ambulances\*; Emergency medical services; Medical emergencies; First aid; Care of injured; Emergency equipment\*; Performance characteristics; Standards; Motor vehicle design; Emergency vehicles; Communication systems; Rescue opera-

tions\*; Extraction\*; Resuscitation\*; Safety design

AVAILABILITY: CFSTI as PB-185 106

HS-820 047 Fld. 1/1

### HIGHWAY SAFETY PROGRAM MANUAL. VOLUME 11. EMERGENCY MEDICAL SERVICES

National Highway Safety Bureau, Washington, D.C.

Jan 1969 133p 20 refs

One of 17 volumes, two of which (vols. 12 and 13) are as yet unissued (see HS-820 036 to HS-820 050).

The complete manual supplements the Highway Safety Program Standards and presents additional information to assist State and local agencies to implement their highway safety programs. This volume is concerned with Emergency Medical Services (EMS) Programs to ensure that victims of traffic crashes receive prompt and adequate emergency care.

Search terms: Highway safety; Safety programs; State government; Local government\*; Emergency medical services; Ambulances; Communication systems\*; Helicopters

AVAILABILITY: Federal Highway Administration, Washington, D.C. 20591, Attn: Records Management Branch. \$6.50

HS-006 052 Fld. 2/0; 1/1; 1/3

### AN ANALYSIS OF EMERGENCY MEDICAL SERVICE FATAL AND NON-FATAL MOTOR VEHICLE INJURIES IN SAN FRANCISCO

by Barry Griffith King; Gertrud Weiss; Ellis Sox

Environmental Control Administration, Cincinnati, Ohio. Injury Control Program

9 refs

The nature and severity of injury and the physical characteristics of the victim are principal factors in establishing the demands on an emergency care system. Analysis was made of 1,162 dead-on-arrival victims and a 20% sample of some 50,000 other cases. Survival potential of the

## 1/1 Emergency Services (Cont.)

### HS-006-052 (Cont.)

fatality cases is analyzed and three case histories given. Detailed information on injuries and time factors is necessary to evaluate emergency medical care systems.

Search terms: Accident data; Emergency medical services; Ambulances; Autopsies\*; Fatalities; Hospitals\*; Time factors\*; Case reports\*; Injury factors; Injury severity; San Francisco\*; Motor vehicle accidents

AVAILABILITY: In American Assoc. for Automotive Medicine, PRE-CRASH FACTORS IN TRAFFIC SAFETY, 17-18 Oct 1968, p117-39 (HS-006 046)

### HS-006 099 Fld. 1/1

#### FALCK & ZONEN IN DENMARK

by O. Soborg Nielsen

Danske Redningskorps Falck og Zonen, Copenhagen (Denmark)

1968 28p

Company brochure describes private ambulance services, fire fighting and rescue operations which provide assistance throughout Denmark. Motor vehicle accidents are included in their operations.

Search terms: Emergency vehicles; Ambulances; Emergency medical services; Denmark\*; Debris removal; Motor vehicle accidents; Fire fighting equipment

AVAILABILITY: Corporate author

### HS-006 100 Fld. 1/2; 1/1

#### THE TREATMENT OF HIGHWAY INJURY: AN INTERNATIONAL BIBLIOGRAPHY

by Eric G. Hanitzsch

Michigan Univ., Ann Arbor. Highway Safety Research Inst.

1969 160p

The effectiveness of an emergency medical system must depend upon both the timeliness of response within the system, and the adequacy of professional care offered by the system. The Highway Safety Research Institute has developed a mathe-

matical model of a recovery system relating these various factors. The present bibliography was prepared in order to provide real data to this model. Literature was sought which reported on multiple cases of trauma from either the field treatment (ambulance) or hospital point of view. Annotations, subject and author indexes are provided for approximately 650 references.

Search terms: Classifications; Bibliographies; Fatalities; Injuries; Accident data; Traffic accidents; Emergency vehicles; Helicopters; Care of injured; Emergency medical services; Medical treatment; First Aid; Ambulances; Medical services; Evacuation of injured

AVAILABILITY: Corporate author

### HS-006 157 Fld. 1/1; 5/4

#### DENNIS FD4 AMBULANCE

by A. J. P. Wilding

Published in *Commercial Motor* v129 n3326 p52-4, 57 (13 Jun 1969)

Road test information on a British prototype ambulance—the Dennis Brothers Ltd. FD4—is provided. It is the first ambulance to be designed as such while fulfilling requirements on ambulance crew training and equipment.

Search terms: Ambulances; Great Britain\*; Road tests; Motor vehicle design

### HS-006 158 Fld. 1/1

#### WHAT'S THE REAL TROUBLE WITH AMBULANCE SERVICES?

by Julian A. Waller

Published in *Traffic Safety* v65 n10 p10-1, 35 (Oct 1965)

Improvement of emergency medical services depends on careful evaluation of the needs and problems in each individual community, and an awareness that an emergency care program involves much more than ambulance service alone. Adoption of the model ambulance ordinance and sufficient financial support are recommended.

Search terms: Ambulances; Financing; Emergency medical services; First aid; Care of injured

### HS-006 207 Fld. 5/6; 1/1

#### POSTCRASH FIRE STUDIES SHOW NEED FOR REAR-SEAT FIRE WALL AND RUPTURE-PROOF FUEL TANK

by Derwyn M. Severy; Harrison M. Brink; Jack D. Baird

Published in *SAE Journal* v77 n7 p18-24 (Jul 1969)

A high-speed rear-end collision experiment involving a postcrash fire points up the need for design improvements. Fuel tanks that are less likely to rupture, cradled above the rear axle, protected by rear wheels and with passenger compartment frame shielded by fireproof bulkhead; use of heat resistant plastic plugs are recommended design changes.

Search terms: Fires; Fire resistant materials; Plastics; Fire prevention; Automobile design; Fuel tanks; Fuel tank connections; Rear end collisions; Passenger compartments; Ruptures; Rear compartments; Post-crash phase; Fire walls

### HS-006 265 Fld. 1/1

#### PROCEEDINGS OF 1966 NEBRASKA CONFERENCE ON AMBULANCE AND RESCUE SQUAD SERVICES

Nebraska Univ., Omaha. Dept. of Surgery

1 Mar 1967 126p 6 refs

Sponsored by Public Health Service, Washington, D.C.

During the last half of 1965, a study was conducted of medical transportation and communications in Nebraska. As part of this program a conference on medical transportation and communications was held. Information concerning patient transport from the site of injury or accident to a hospital was sought. The events leading to the conference, major addresses given, seminar reports, subsequent projects and conclusions are presented.

Search terms: Conferences; Emergency medical services; Ambulances; Evacuation of injured; Nebraska; Communication systems

AVAILABILITY: Corporate author (Includes HS-006 265 to HS-006 273)

## 1/1 Emergency Services (Cont.)

HS-006 266 Fld. 1/1

### AMBULANCE SERVICES IN THE UNITED STATES IN 1966

by Roswell K. Brown

American Coll. of Surgeons, New York

24p 6 refs

Reviews emergency ambulance services in the United States: organization and management, business and legal aspects, personnel, vehicles, equipment and communications. Suggests standards relating to these areas. Considers that proper ambulance services can and should save lives, shorten hospital occupancy, and lessen both temporary and permanent disabilities.

Search terms: Ambulances; Economic factors; Legal factors; Personnel; Emergency vehicles; Communication systems; State of the art studies; Emergency medical services; Standards

AVAILABILITY: *In* Nebraska Univ. Dept. of Surgery, PROCEEDINGS OF 1966 NEBRASKA CONFERENCE ON AMBULANCE AND RESCUE SQUAD SERVICES, 1 Mar 1967 (HS-006 265)

HS-006 267 Fld. 1/1

### THE ROLE OF THE PUBLIC HEALTH SERVICE IN EMERGENCY MEDICAL SERVICES

by John Hove

Public Health Service, Kansas City, Mo.

9p

The Public Health Service's Emergency Medical Services Branch is concerned with minimizing the consequences of accidental injury or sudden illness. Two approaches are used: (1) improved methods of early management and treatment; and (2) community organizations of services to expedite care at the site of injury, during ambulance transportation, and in the hospital.

Search terms: Public Health Service; Emergency medical services; Care of injured; Safety programs; First aid; Medical treatment; Ambulances; Injury factors; Acci-

dent factors

AVAILABILITY: *In* Nebraska Univ. Dept. of Surgery, PROCEEDINGS OF 1966 NEBRASKA CONFERENCE ON AMBULANCE AND RESCUE SQUAD SERVICES, 1 Mar 1967 (HS-006 265)

HS-006 268 Fld. 1/1; 2/0

### THE REVOLUTION IN TRAFFIC SAFETY

by Edwin L. Kirby

National Safety Council, Chicago, Ill. 17p

Traces the history of traffic safety and outlines the major provisions of the Highway Safety Act of 1966. Background data concerning a model ordinance regulating ambulance service is presented. Three main problem areas are considered: traffic regulation of casualty carrying vehicles; training and competency of ambulance personnel; equipment of emergency vehicles.

Search terms: Ambulances; Emergency medical services; Legislation; Highway Safety Act of 1966; Personnel; Traffic safety; Emergency equipment

AVAILABILITY: *In* Nebraska Univ. Dept. of Surgery, PROCEEDINGS OF 1966 NEBRASKA CONFERENCE ON AMBULANCE AND RESCUE SQUAD SERVICES, 1 Mar 1967 (HS-006 265)

HS-006 269 Fld. 1/1

### NEBRASKA'S CONTRIBUTION TO AMBULANCE AND RESCUE SERVICES

by Burl M. Johnson

Nebraska. State Civil Defense Agency, Lincoln

10p

Questionnaires were mailed to 1248 physicians, 125 rescue squads, 154 private ambulance operators and 540 mayors. The survey dealt with the ambulance, medical equipment of ambulances, medical communications, ambulance attendant training-education. Excerpts from the summary are presented.

Search terms: Questionnaires; Nebraska; Ambulances; Emergency medical services; Personnel; Com-

munication systems; Rescue operations; Emergency equipment; Standards

AVAILABILITY: *In* Nebraska Univ. Dept. of Surgery, PROCEEDINGS OF 1966 NEBRASKA CONFERENCE ON AMBULANCE AND RESCUE SQUAD SERVICES, 1 Mar 1967 (HS-006 265)

HS-006 270 Fld. 1/1

### SEMINAR ON EDUCATION OF EMERGENCY PERSONNEL

by Carl W. Sasse, Jr.; Roswell K. Brown; Joseph Billodeau; Ted Dappen; E. P. Schroeder; Ed Thilliander

3p

This panel explored the national, state, and local aspects of education for those involved with ambulance and rescue squad services. The overall national program, education from the standpoint of the American Red Cross at the state level, educational facilities available to the public through the Nebraska Safety Patrol, the educational programs established at the local level were discussed.

Search terms: Ambulances; Emergency medical services; Personnel; Local government; Education; Safety programs; Nebraska; Rescue operations; First aid; Medical treatment

AVAILABILITY: *In* Nebraska Univ. Dept. of Surgery, PROCEEDINGS OF 1966 NEBRASKA CONFERENCE ON AMBULANCE AND RESCUE SQUAD SERVICES, 1 Mar 1967 (HS-006 265)

HS-006 271 Fld. 1/1

### SEMINAR ON COMMUNICATIONS PROBLEMS AND SOLUTIONS

by Carrol M. Fuller, moderator

3p

Reports reactions of the participants to the communications situation in relation to ambulances and hospitals. Topics discussed by panel members included: telephone services provided within Nebraska and standardization of emergency telephone numbers; two-way radio communication and a proposed state-wide medical com-



## 1/1 Emergency Services (Cont.)

HS-006-271 (Cont.)

munications network.

Search terms: Ambulances; Communication systems; Emergency medical services; Telephones; Radio communication; Hospitals; Standardization; Emergency services

AVAILABILITY: In Nebraska Univ. Dept. of Surgery, PROCEEDINGS OF 1966 NEBRASKA CONFERENCE ON AMBULANCE AND RESCUE SQUAD SERVICES, 1 Mar 1967 (HS-006 265)

HS-006 272 Fld. 1/1

### SEMINAR ON EXPERIENCES WITH THE EXPERIMENTAL AMBULANCE

by Roy Shaeff, moderator; Royce Ling, moderator

3p

Explains the purposes of the Econoline Ford Ambulance Study, the objectives, reactions of the users and the participants of the conference. Funeral directors were opposed, firemen accepted the concept. Concern for continuation of experimental work on ambulances and the need for establishing an ambulance testing laboratory were expressed.

Search terms: Ambulances; Ford Motor Co.; Experimental vehicles; Firemen; Test facilities

AVAILABILITY: In Nebraska Univ. Dept. of Surgery, PROCEEDINGS OF 1966 NEBRASKA CONFERENCE ON AMBULANCE AND RESCUE SQUAD SERVICES, 1 Mar 1967 (HS-006 265)

HS-006 273 Fld. 1/1

### SEMINAR ON THE AMBULANCE, EQUIPMENT, DESIGN AND ECONOMICS

by John McCammond, moderator; Everett O. Govier, moderator

2p

The economic aspects of ambulance operations were discussed. The greatest concern centered around the elimination of the rural funeral director from ambulance service. It was expected that many communities

in Nebraska would be without emergency services when half the funeral directors discontinued ambulance operation. The participants felt that the public should be expected to pay a reasonable fee for such services.

Search terms: Ambulances; Emergency medical services; Nebraska; Economic factors; Community support; Emergency equipment

AVAILABILITY: In Nebraska Univ. Dept. of Surgery, PROCEEDINGS OF 1966 NEBRASKA CONFERENCE ON AMBULANCE AND RESCUE SQUAD SERVICES, 1 Mar 1967 (HS-006 265)

HS-006 274 Fld. 1/1

### TRANSPORTATION OF INJURED PERSONS

by George Curry

Published in *Clinical Orthopaedics and Related Research* n59 p189-91 (Jul-Aug 1968)

A letter to the editor of the journal discusses immediate care and transportation of the injured, and stresses the importance of adequately training ambulance attendants, suggesting minimum requirements; covers the hazards of a speeding ambulance, and recommends that these vehicles observe local speed laws and retain the use of sirens for identification and to obtain the right of way; and voices the necessity of annual conferences for all those associated with or interested in this aspect of emergency services.

Search terms: Emergency medical services; Ambulances; Care of injured; Speed limits; High speed

HS-800 161 Fld. 1/1

### FEASIBILITY STUDY OF BALLISTIC CUTTING OF VEHICLE STRUCTURES. FINAL REPORT

Ordnance Engineering Associates, Inc., Des Plaines, Ill.

12 May 1969 39p 7 refs  
Contract FH-11-6887

The feasibility of using ballistic devices to cut auto structures in order to remove injured and entrapped occupants has been studied. It was concluded that the roof structures of most autos are

similar enough to allow a single ballistic kit to provide access to most trapped occupants. A ballistic cutting kit has been designed which is simple, safe, easy to use, rapid, reasonable in cost, and with no fire hazard. Cutting a panel out of the car top is recommended because there are a minimum of structural members there. Cutting doors would be more difficult and possibly dangerous. Cutting is done with flexible linear shaped charge (FLSC) which uses a minimum explosive charge.

Search terms: Extraction\*; Rescue operations\*; Metal cutting\*; Explosives\*; Fire prevention; Care of injured; Debris removal; Automobile design; Ballistics\*; Roofs\*; Emergency equipment\*

AVAILABILITY: CFSTI

HS-006 319 Fld. 1/1

### MEDICAL REQUIREMENTS FOR AMBULANCE DESIGN AND EQUIPMENT

National Academy of Sciences—National Research Council, Washington, D.C. Committee on Emergency Medical Services

Sep 1968 26p 15 refs  
Contract PH-110-68-1

Design requirements for an ambulance are discussed. Included are the general vehicular design, the driver and patient areas, security and rescue equipment, emergency care equipment and supplies, communication equipment, and helicopters as ambulances. The types of medical emergencies for which equipment should be carried are detailed.

Search terms: Ambulances; Emergency equipment; Helicopters; Care of injured; Medical treatment; First aid; Rescue operations; Communication systems; Emergency medical services

AVAILABILITY: Corporate author

HS-006 320 Fld. 1/1

### ROAD ACCIDENTS AND THE FAMILY DOCTOR

Anonymous

Published in *British Medical Journal* v2 n5654 p398-9 (17 May 1969)

It is suggested that one-fourth of the



## 1/1 Emergency Services (Cont.)

HS-006-320 (Cont.)

accident fatalities in Great Britain occur between the accident and arrival at the hospital. Suggestions for better emergency medical care are given, including better organization, better first aid training, and use of family doctors to treat victims.

Search terms: Emergency medical services; First aid; Fatalities; Physicians; Great Britain; Medical treatment

HS-006 321 Fld. 1/1

### ACCIDENTAL DEATH AND DISABILITY: THE NEGLECTED DISEASE OF MODERN SOCIETY

National Academy of Sciences—National Research Council, Washington, D.C. Div. of Medical Sciences  
Sep 1966 39 p 16 refs

The present status of medical care and emergency medical services afforded the victims of accidental injury has been reviewed. These studies include reviews of ambulance services, voice communication systems, emergency departments and intensive care units of hospitals, appraisal of current research in shock, trauma, and resuscitation, revision of first aid textbook, statement on cardiopulmonary resuscitation, and participation in disaster survey studies. This pamphlet summarizes current practices and deficiencies at various levels of emergency care and presents specific recommendations designed to reduce accidental deaths and disability.

Search terms: Emergency medical services; Care of injured; Communication systems; Disasters; Ambulances; Hospitals; First aid; Accident factors; Resuscitation; Fatalities; Injuries

AVAILABILITY: Corporate author

HS-006 381 Fld. 1/1

### AERIAL AMBULANCE

by Frank McClung

Published in *Bee-Hive/United Aircraft* v43 n3 p9-13 (Sum 1968)

In this Ohio experiment a helicopter with medical personnel aboard speeds

accident victims to the hospital. Pilots using the UH-19D (Sikorsky S-55) are linked with patrol headquarters and with police cruisers by short wave radio. Costs of \$2200 per month for maintenance are equated to the three lives saved in the first month. Goals in the Columbus medicopter experiment were to test feasibility of moving critical patients to hospitals and moving physicians and medical equipment to accident sites on highways.

Search terms: Helicopters; Ambulances; Emergency medical services; Ohio; Care of injured; Evacuation of injured; Highway communication; Police traffic services; Radio communication; Physicians

HS-820 057 Fld. 1/1

### HIGHWAY SAFETY PROGRAM PRIORITIES SEMINAR, FREDERICKSBURG, VIRGINIA, JULY 18-20, 1969. PROCEEDINGS, VOL. 3: EMERGENCY MEDICAL SERVICES

National Highway Safety Bureau, Washington, D.C.

1969 27p

Report no. PB-186 270

There is a well-documented national need to improve emergency medical services. Highway emergency medical services are motivating a comprehensive first effort, but inadequacy of a data base is a major deficiency and lack of individual interest in improving services is a major concern. The federal role should be the coordination of various agencies and programs to achieve an overall upgrading of these services. The inadequacies of the present ambulance system are outlined, including equipment, communications, and first aid training of personnel. Recommendations are made for seven steps which would offer the greatest benefits in improving emergency care.

Search terms: Emergency medical services; Ambulances; Ambulance personnel; Federal aid; Communication systems; First aid; Emergency equipment; Benefit cost analysis; Community support

AVAILABILITY: CFSTI as PB-186 270

HS-006 430 Fld. 1/1

### EARLY MANAGEMENT OF THE CRITICALLY INJURED

by Donald J. Currie

Published in *Canadian Medical Association Journal* v95 n10 p862-70 (22 Oct 1966) 16 refs

Presented in part to the Thunder Bay Medical Society, Port Arthur, Ont. Nov. 18, 1965.

Priorities of treatment must guide the management of the critically injured patient. The aim is to save life rather than limb; function rather than structure. A plan is offered which indicates management for: airway, bleeding and shock; consciousness, digestive organs, excretory organs and fractures at the scene of the accident, in the emergency department, and in the surgical operating room. Maintenance of adequate ventilation and circulation are the most important priorities. Procedures are written for the physician or surgeon.

Search terms: Care of injured; Emergency medical services; Physicians; Medical treatment; Injuries; Airway maintenance; Hemorrhage; Shock (Pathology); Fractures; Gastrointestinal system; Urogenital system; Nervous system; Surgery; First aid

HS-006 431 Fld. 1/1

### ALLIED HEALTH PERSONNEL: A REPORT ON THEIR USE IN THE MILITARY SERVICES AS A MODEL FOR USE IN NON-MILITARY HEALTH-CARE PROGRAMS

National Academy of Sciences—National Research Council, Washington, D.C. Div. of Medical Sciences  
1969 30p 33 refs

Using the military medical departments as a model, this report explores the feasibility of training nonprofessional health manpower to perform tasks associated with direct health services which may not require full professional training and skills. It is recommended that medical corpsmen should be recruited into the civilian medical field when they leave the military services. Other suggestions are made on the training of medical personnel.

## 1/1 Emergency Services (Cont.)

HS-006 431 (Cont.)

Search terms: Military personnel; Medical services; Military organizations; Manpower utilization

AVAILABILITY: Corporate author

HS-006 432 Fld. 1/1

### THE DOCTOR'S DILEMMA

by James R. DeNoyer

Published in *Traffic Safety* v62 n2 p8-10, 37 (Feb 1963)

Controversy surrounding Good Samaritan legislation is discussed. Medical, legal, and moral problems connected with a physician's decision to administer emergency services to an accident victim and the serious implications which can follow are also covered.

Search terms: Good Samaritan laws; Physicians; Negligence; First aid; Liability insurance; Medical ethics; Legal responsibility

HS-810 087 Fld. 1/1

### THE LAW OFFICER AND FIRST AID ON THE HIGHWAYS

by John M. Waters, Jr.

National Highway Safety Bureau, Washington, D. C. Highway Safety Programs Service

Published in *Law and Order* v16 n6 p18,21-2, 106 (Jun 1968)

The police officer has a vital role in detection of crashes, alerting of rescue resources, initial first aid for the injured, investigating the accident, maintenance of order at the scene, removal of debris, and restoration of traffic flow. Emphasis is placed on the importance of first aid training for police and other emergency personnel.

Search terms: Rescue operations; Police; First aid; Emergency medical services; Automobile accidents

HS-006 488 Fld. 1/1

### TASK FORCE ON AMBULANCE SERVICES. SUMMARY REPORT

National Academy of Sciences-National Research Council, Washington, D.C. Div. of Medical Sciences

23p 5 refs

Contract PH-86-65-104

The present status of ambulance service is outlined with respect to organization and management, personnel, vehicles, equipment, and communication. Deficiencies are pointed out and corrective measures discussed. The NAS-NRC Committee on Emergency Medical Services disagrees with the task force recommendation that rescue equipment should not be carried on ambulances.

Search terms: Ambulances; Ambulance personnel; Emergency equipment; Communication systems; Rescue operations; Emergency vehicles; First aid; Standards

AVAILABILITY: Corporate author

HS-006 489 Fld. 1/1

### CARE FOR THE ILL AND INJURED

by Robert H. Kennedy

Published in *The National Sheriff* v20 n5 p4-5, 28-30 (Sep-Oct 1968)

A good community program should cover planning for traffic accident victims and the victims of other types of accidents and disasters. The history of ambulance service in the United States is outlined briefly. The difference in quality between urban and rural service is pointed out. It is urged that law enforcement officers should be trained in first aid. Better training for ambulance attendants is also needed.

Search terms: Emergency medical services; Ambulances; History; Urban accidents; Rural accidents; First aid; Ambulance personnel; Police; Local government; Disasters; Accident factors

HS-006 490 Fld. 1/1

### BATTLEFIELD EVACUATION TECHNIQUES. WHAT WE CAN LEARN FROM THEM

by Spurgeon H. Neel

Published in *Traffic Safety* v8 n8 p8-11, 38-9 (Aug 1968)

Presented at the 21st National Conference on Rural Health, Seattle, Washington.

Army experience with helicopter evacuation in battle in Korea and Vietnam is summarized. The major lessons learned could be applied to the improvement of civilian emergency medical services in the United States. The mortality rate among wounded in Vietnam is only 2.3%, and helicopter evacuation makes this possible. Helicopter crew training, radio communication, and other techniques are discussed.

Search terms: Emergency medical services; Fatalities; Helicopters; Ambulances; Evacuation of injured; Ambulance personnel; Radio communication

HS-006 523 Fld. 4/1; 1/1

### COMPENDIUM OF STATE STATUTES ON THE REGULATION OF AMBULANCE SERVICES, OPERATION OF EMERGENCY VEHICLES AND GOOD SAMARITAN LAWS. REV. ED.

Public Health Service, Washington, D.C.

Jun 1969 108p

Report no. PHS-Pub-1071-A-11

This compendium is intended for public health officials and groups concerned with improving the organization and delivery of emergency medical services. It details laws concerning emergency vehicles including ambulances and their equipment, first aid, ambulance crews and their qualifications, record keeping, inspection of vehicle and equipment, and registration. For Good Samaritan laws, year of enactment and kinds of coverage provided are detailed.

Search terms: Good Samaritan laws; First aid; Emergency medical services; Ambulances; Emergency vehicles; Emergency equipment; Motor vehicle inspection; Motor vehicle registration; Liability; Ambulance personnel; State laws; Ambulance laws

AVAILABILITY: GPO \$1.50

## 1/1 Emergency Services (Cont.)

HS-006 524 Fld. 4/1; 1/1

### A MODEL ORDINANCE REGULATING AMBULANCE SERVICE

Joint Action Program, Chicago, Ill.

Aug 1966 23p

Reproduced with permission by Public Health Service, Washington, D.C.

This ordinance, which can also serve as a model state law, covers ambulance licensing, licensing standards, liability insurance, duties of license and health officers, standards for ambulance equipment, standards for drivers and attendants, renewal and revocation of license, requirements for filing of reports, traffic laws for ambulances, penalties for non-compliance.

Search terms: State laws; Ambulances; Ambulance personnel; Local government; Licensing; Traffic laws; Penalties; Emergency equipment; Emergency medical services; Liability insurance; Public health; Driver license standards; Standards; Model ambulance ordinances; Ambulance licensing

AVAILABILITY: Information Clearing House, Public Health Service, 6935 Wisconsin Ave., Chevy Chase, Md. 20015

HS-006 547 Fld. 1/1

### AMBULANCE DESIGN AND EQUIPMENT FOR RESUSCITATION

by Peter Safar; Richard A. Brose

Published in *Archives of Surgery* v90 p343-8 (Mar 1965) 12 refs

Most present ambulances are not designed and equipped for modern care of unconscious, nonbreathing, and pulseless patients. Modifications are recommended to provide access to the patient for respiratory resuscitation and external cardiac compression; hand-operated ventilation equipment; powerful suction from ambulance engine or electric motor; large reservoir of oxygen; bag-mask for oxygen inhalation; oropharyngeal tubes; portable equipment for ventilation, oxygen inhalation, and suction. Additional equipment is recommended for ambulances manned by physicians.

Search terms: Ambulances; Resuscitation; Physicians; First aid; Care of injured; Respiratory system; Oxygen; Heart; Emergency equipment

HS-006 583 Fld. 4/1; 1/1; 2/3

### HIGHWAY TRANSPORTATION OF EXTRA-HAZARDOUS COMMODITIES: SUGGESTED GUIDE FOR STATE ACTION ON SAFETY FROM FIRE, EXPLOSION AND HEALTH HAZARDS

American Insurance Assoc., New York

1966 24p 21 refs

This guide is designed to promote valid and uniform highway safety controls; to minimize the hazards accompanying the transportation of certain dangerous materials; and to safeguard the public and communities along the nation's traffic arteries against the possibility of a major disaster resulting from fire, explosion, and accidental release of toxic or poisonous substances. The guide is presented for state enactment of a "Transportation of Extra-hazardous Commodities Act."

Search terms: State government; Fires; Disasters; Safety laws; Hazardous materials; Highway transportation; Regulations; Motor vehicle inspection; Safety measures; Health hazards; Motor carriers; Cargo transportation

AVAILABILITY: Corporate author

HS-006 699 Fld. 4/8; 1/1

### PREFERENCES FOR MULTI-ATTRIBUTED ALTERNATIVES

by Howard Raiffa

Rand Corp., Santa Monica, Calif.

Apr 1969 116p 16 refs

Contract DOT-3-0008

Report no. RM-5868-DOT/RC

Techniques for assessing the utility of complex alternatives are presented. A hierarchical structuring procedure for obtaining a relevant list of attributes is described and examples are given from problems of the Northeast Corridor Transportation Project and from medical treatment problems. The ideas developed are applied to various problems, particularly the problem of assessing the economic

value of a life, an area of importance in both transportation and medical treatment applications.

Search terms: Benefit cost analysis; Transportation planning; Safety measures; Decision theory; Decision making; Mathematical analysis; Economic analysis; Medical services

AVAILABILITY: Corporate author

HS-810 090 Fld. 1/1

### EMERGENCY MEDICAL SERVICES FOR HIGHWAY SAFETY

by Robert Brenner

National Highway Safety Bureau, Washington, D.C.

14 Oct 1969 11p

Prepared for presentation at 8th Annual Conference of the Ambulance Assoc. of America, Portland, Ore.

Viewpoints and programs of the National Highway Safety Bureau regarding emergency medical services are discussed. The inadequacy of present services, especially in rural areas, contributes to the highway death toll. Safety standards, including the one for emergency medical services, are discussed. A key feature of federal grant programs is the training of ambulance attendants. Several demonstration projects are described. Program planning requires decisions about what areas to concentrate on, how much can be spent, and what type of service can be considered optimum.

Search terms: National Highway Safety Bureau; Emergency medical services; Costs; Rural areas; Fatalities; Safety standards; Federal aid; Ambulance personnel; Decision making; Highway safety

AVAILABILITY: NHSB

HS-006 713 Fld. 1/1

### COMMUNITY TRAINING OF AMBULANCE ATTENDANTS

by Paul Campbell

Published in *Northwest Medicine* v67 n11 p 1084-6d (Nov 1968)

Training ambulance attendants in advanced first aid techniques is a medical responsibility. The Portland

## **1/1 Emergency Services (Cont.)**

### **HS-006-713 (Cont.)**

Community College cooperated with a committee of physicians in presenting a comprehensive course lasting ten weeks. Plans are being made to present the course in other Oregon communities. The curriculum of this emergency medical care course is included.

Search terms: First aid; Ambulance personnel; Oregon; Emergency medical services; Curricula; Physicians

## 1/2 Injuries

HS-004 309 Fld. 1/2; 3/11

### "INJURIES"—THEIR ROLE IN RECONSTRUCTION OF TRAFFIC ACCIDENTS

by Jagat Bandhu Mukherjee

Published in *Journal of the Indian Medical Associations* v49 n5 p224-8 (1 Sep 1967)

Study of the kinds of injuries sustained by pedestrians and how to reconstruct accidents by studying injury pattern. Injuries are grouped into those primary impact, secondary impact, and "running down" or crash. Pathology of injuries may be better court evidence than witnesses. Study describes conditions in India, where pedestrians are considered not to be traffic conscious.

HS-004 309

Search terms: Injury research; Accident research; Pedestrian accidents; Traffic accidents; Crushing; Pedestrian behavior; Forensic medicine; Impact injuries

## 1/2 Injuries

HS-004 335 Fld. 1/2

### BILATERAL TESTICULAR RUPTURE; REPORT OF A CASE

by Donald R. Pohl, Douglas E. Johnson, Jack R. Robison

Published in the *Journal of Urology* v99 p772-73

Describes injury resulting from a motorcycle accident. Early surgical exploration and preservation of testicular tissue are strongly advocated.

HS-004 335

Search terms: Testis; Rupture; Motorcycle accidents; Surgery; Case reports

HS-004 337 Fld. 1/2

### INJURY PATTERNS IN VARIOUS CLASSES OF ROAD USERS

by Stewart H. Harrison

Published in *Medical and Biological Illustration* v16 n1 p4-12 (Jan 1966)

Accident casualties are classified into four main groups, pedestrians, bicyclists, motorcyclists, and car occupants. Each group sustains a characteristic pattern of injury. Ten case histories provide a survey of the surgical problems typically presented by each group.

HS-004 337

Search terms: Pedestrian accidents; Motorcycle accidents; Bicycle accidents; Occupants; Accident data; Surgery; Motor vehicle accidents; Injuries; Case reports; Automobile accidents

HS-004 338 Fld. 1/2

### INTRAORAL RECONSTRUCTION OF SOFT TISSUE DEFECTS

by Richard C. Schultz

Published in *Surgical Clinics of North America* v48 n1 p121-7 (Feb 1968).

Auto accidents account for most oral defects: lacerations, avulsion flaps, fractures of teeth, alveolus or bone. These should never be allowed to heal spontaneously. This paper offers 4 alternatives for correcting defects in the lining of the mouth.

HS-004 338

Search terms: Facial injuries; Surgery; Medical treatment; Automobile accidents; Mouth rehabilitation

HS-004 339 Fld. 1/2

### NON-PENETRATING TRAUMATIC RUPTURE OF THE DIAPHRAGM

by G. Efron, I. Hyde

Published in *Clinical Radiology* v18 p394-98 (Oct 1967)

Describes four cases, all auto accident victims. Early diagnosis and surgical repair are recommended.

HS-004 339

Search terms: Rupture; Diaphragm; Chest injuries; Surgery; Diagnosis; Case reports; Automobile accidents

HS-004 340 Fld. 1/2

### POST-TRAUMATIC ANTERIOR ANKLE INSTABILITY

by Oscar Landeros, Harold M. Frost, Christopher C. Higgins

Published in *Clinical Orthopaedics and Related Research* n56 p169-78 (Jan-Feb 1968)

Describes five cases, two of which were result of Auto accidents, and outlines techniques for surgical repair.

HS-004 340

Search terms: Sprains and strains; Surgery; Leg injuries; Case reports; Automobile accidents

HS-004 341 Fld. 1/2

### PULMONARY LACERATION COMPLICATING CLOSED CHEST INJURY

by R. Sleigh Johnson, D. F. Reynolds, P. Naish, R. A. Grande

Published in *British Journal of Diseases of the Chest* v61 p205-7 (Oct 1967)

Case history describing injury to driver of a motor scooter. Pulmonary lacerations from injury can be misdiagnoses as lung abscess. Radiography is used in diagnosis.

Search terms: Chest injuries; Lung; Radiography; Diagnosis; Case reports; Motor scooter accidents

## 1/2 Injuries (Cont.)

HS-004 342 Fld. 1/2; 3/9

### SUBCLAVIAN-STEAL SYNDROME AND MOTOR ACCIDENTS

by Bernard Wortreich, Mark Moses, Harry Bank

Published in *Lancet* v2 n7515 p533-4 (9 Sep 1967)

Two patients, with radiologically proven subclavian-steal syndrome, while driving a car had acute episodes of cerebral ischaemia which caused accidents. Reversal of flow in a vertebral artery will under certain circumstances give rise to neurological disturbances. The commoner features are a transient attack of dizziness, true vertigo, blurring of vision, dysarthria, and actual syncope. This situation may not ordinarily endanger the patient, but may constitute a danger and prove disastrous if the attack comes on while he is driving a car.

HS-004 342

Search terms: Subclavian steal syndrome; Traffic accidents; Vertigo; Vision disorders; Speech disorders; Case reports

HS-004 344 Fld. 1/2

### TRAUMATIC RUPTURE OF THE DIAPHRAGM AFTER BLUNT INJURY

by J. D. Miller, P. W. Howie

Published in *British Journal of Surgery* v55 n6 p423-29 (Jun 1968)

Ten cases are described, the recent literature reviewed, and the mechanism of injury is discussed. Six were auto accident victims. Diagnosis and management of the cases are outlined.

HS-004 344

Search terms: Rupture; Diaphragm; Chest injuries; Diagnosis; Case reports

HS-004 369 Fld. 1/2

### AUDIOMETRIC AND ELECTRO- NYSTAGMOGRAPHIC STUDIES OF PATIENTS WITH TRAUMATIC SKULL INJURIES

by T. Rantanen, E. Aantaa, A. Salmivalli, O. H. Meurman

Published in *Acta Oto-Laryngologica* (Stockholm) Suppl 224 p256-9 (27 Jun 1966)

Study of 41 auto accident victims. About half those with skull injury suffered hearing loss, but in the majority the loss was temporary. A careful otoneurological examination should be made as soon as possible for patients with skull injuries.

Search terms: Auditory perception, Diagnosis, Head injuries, Traffic accidents

HS-004 370 Fld. 1/2

### AUTOMOBILE ACCIDENTS AND LARYNGEAL AND UPPER TRACHEAL TRAUMA

by Paul H. Holinger, John W. Curtin

Published in *Presbyterian-St. Luke's Hospital Medical Bulletin* n3 p46-52 (Apr 1964)

Of a group of 82 laryngeal fractures, 43 were motor vehicle accident victims, and 33 required surgery. The frequency of laryngeal injury is increasing, but only one of 43 victims was wearing seat belt. Failure to repair laryngeal fractures promptly can result in need for tracheostomy.

Search terms: Fractures, Larynx, Motor vehicle accidents, Neck injuries, Seat belts, Surgery, Trachea, Tracheostomy

HS-004 371 Fld. 1/2

### CARDIAC CONTUSION

by George A. Ferre, W. Dean Steward

Published in *Clinical Orthopaedics and Related Research* n53 p123-30 (Jul-Aug 1967)

Presented at Florida Orthopedic Association annual meeting, Tampa, Fla., Oct. 11, 1964, and Virginia Orthopedic Society annual meeting, Lynchburg, Va., May 7, 1965.

Cardiac contusion is caused most commonly by compression between sternum and vertebral column when sternum is driven in by forceful blow, as with steering wheel injury. Medical aspects are discussed. Physicians dealing with trauma are urged to consider possibility of cardiac damage, for which serial electrocardiograms are necessary in diagnosis. 92 cases are described, of which 84 were auto accident victims.

Search terms: Case reports, Diagnosis, Electrocardio-

graphy, Forensic medicine, Heart injuries, Spinal cord, Steering wheel impacts, Sternum

HS-004 372 Fld. 1/2

### MENTAL SEQUELAE OF HEAD INJURY

by Henry Miller

Published in *Proceedings of the Royal Society of Medicine* v59 p257-61 (Mar 1966)

Traffic injuries, especially to motorcyclists, may cause serious head injuries. Amnesia, skull fractures, brain concussion, neuroses, depression, epilepsy, presenile dementia are discussed.

Search terms: Amnesia, Brain concussion, Dementia (presenile), Depression,

## 1/2 Injuries (Cont.)

HS-004-372 (Cont.)

Epilepsy, Fractures,  
Head injuries, Mental  
illness, Motorcycle  
accidents, Neuroses, Skull,  
Traffic accidents

HS-004 373 Fld. 1/2

### RELATIONSHIP OF PELVIC BONE FRACTURE PATTERNS TO URETHRA AND BLADDER

by James J. Flaherty,  
Ralph Kelley,  
Bradford Burnett, James  
Bucy, Michael Surian,  
Daniel Schildkraut,  
B. G. Clarke

Published in the Journal  
of Urology v99 p297-300  
(Mar 1968)

Of 425 patients with pelvic  
fractures, 71 had signs of  
urinary tract injury. 84%  
of these had been injured in  
automobile accidents.  
Diagnosis of urinary tract  
injuries is discussed.

Search terms: Automobile  
accidents, Bladder,  
Diagnosis, Fractures,  
Pelvic injuries, Urethra

HS-004 374 Fld. 1/2

### RUPTURE OF THE COMMON BILE DUCT BY BLUNT TRAUMA

by Burns Plewes,  
James A. McKee

Published in Canadian  
Medical Association  
Journal v98 p170-1  
(20 Jan 1968)

Case history of a six-year-  
old child run over by a car.  
After surgical repair,  
she recovered and is free  
of symptoms eight years  
later.

Search terms: Abdomen  
injuries, Bile ducts,  
Case reports, Rupture,  
Surgery

HS-004 375 Fld. 1/2

### SEAT BELT TRAUMA TO THE ABDOMEN

by Janis Sube,  
H. Haskell Ziperman,  
William J. McIver

Published in American  
Journal of Surgery v113  
n3 p346-350 (Mar 1967)

Two cases of abdominal in-  
juries due to lap type  
seat belts are presented  
and the literature reviewed.  
Such injuries are infrequent  
and generally fall into  
three broad categories:  
superficial abdominal wall  
injuries, intra-abdominal  
vascular problems, and  
rupture of a hollow viscus.  
Injuries take place when  
seat belt is worn too  
high or too loosely.

Search terms: Abdomen  
injuries, Automobile  
accidents, Case reports,  
Diagnosis, Rupture,  
Seat belts

HS-004 376 Fld. 1/2

### A SEVERE MAXILLO-FACIAL INJURY

by Brenda Meakins

Published in Nursing Times  
v64 p8-11 (5 Jan 1968)

Following a head-on collision  
between his motorbike and a  
bus, this patient suffered  
a fractured middle third of  
the facial skeleton which  
was complicated by left  
tension pneumothorax. A  
tracheostomy was performed;  
fractures were reduced by  
fixing cap splints and  
wires. 10 weeks after the  
injury, fractures had healed.  
This case report details  
nursing care required.

Search terms: Care of  
injured, Crash injuries,  
Facial injuries, Fractures,  
Head on collisions, Maxilla,  
Motor scooter accidents,  
Nursing, Pneumothorax,  
Tracheostomy, Traffic  
accidents

HS-004 377 Fld. 1/2

### TRAUMA OF THE LARYNX by Donald A. Shumrick

Published in Archives of  
Otolaryngology (Chicago)  
v86 p109-114 (Dec 1967)

Seat belts do not prevent  
secondary collisions in  
which larynx is often  
injured; shoulder belts  
should also be worn.  
Methods for surgical re-  
pair of larynx fractures  
and injuries are discussed.

Search terms: Fractures,  
Larynx, Neck injuries,  
Seat belts, Secondary  
collisions, Shoulder  
harnesses, Surgery

HS-004 397 Fld. 1/1, 1/2

### TRAUMATIC RUPTURE OF THE AORTA

by I. E. Langbein,  
P. W. T. Brandt

Published in Australian Radio-  
logy v12 p102-8 (May 1968)

Six cases are described, all  
auto accident victims. Prompt  
diagnosis and surgical repair  
are necessary.

Search terms: Chest in-  
juries, Rupture, Surgery,  
Aorta, Diagnosis  
impairs driving ability  
sooner. Describes a North  
Carolina study on the early  
management of trauma in  
hospitals, analyzing the  
errors most commonly made.

Search terms: Accident  
prevention, Food, Alco-  
holic beverages, Driver  
physical fitness, Drinking  
drivers, Blood alcohol  
levels, Hospitals, Emer-  
gency medical services,  
Medical emergencies,  
North Carolina, Motor  
vehicle accidents, In-  
juries, Care of injured

HS-004 399 Fld. 1/3, 1/2

### AUTOMOBILE ACCIDENTS

## 1/2 Injuries (Cont.)

HS-004-399 (Cont.)

by James K. Stack

Published in Journal of Trauma v5 p831-4 (Nov 1965)

Comments on the problem of minor accidents which do not have to be reported in many states, and ways in which they can be avoided. Discusses results of tests on effects of alcohol on driving ability, with or without food. Drinking without eating raises blood alcohol faster and

HS-004 402 Fld. 1/2

SEAT BELT INJURIES  
by Samuel D. Porter,  
Edward W. Green

Published in Archives of Surgery v96 n2 p242-6 (Feb 1968)

Three cases of severe injury from seat belts are described. The importance of recognizing the clinical entity associated with seat belt injury with the insidious course of small bowel perforation is emphasized.

Search terms: Abdomen injuries, Internal injuries, Seat belts, Fractures, Rupture, Spleen, Intestines, Case reports

HS-004 418 Fld. 4/6,1/2

AUTOMOBILE LIABILITY, THE BOILING TEMPEST  
by William Schwartz,  
Harry Levine

Published in Medical Trial Technique Quarterly v13 p57-61 (Jun 1967)

Problems connected with mounting dissatisfaction with current auto injury liability procedures are presented. Basic protection coverage without consideration of fault (tort relationships), merit plans, accident experience rating are suggest-

ed so that more equitable economic, medical, legal and rehabilitative solutions can be instituted.

Search terms: Insurance, Compensation, Automobile accidents, Injuries, Liability insurance

HS-004 426 Fld. 5/14,1/2

THE SEAT BELT SYNDROME-- DOES IT EXIST?  
by Jay Fish, Robert H. Wright

Published in the Journal of Trauma v5 n6 p746-50 (1965)

Seat belts are effective in reducing major injuries and ejections in auto accidents, but their use may cause a new type of injury. An airplane crash is described in which all 21 persons wore lap-type seat belts. Four suffered severe abdominal injury probably caused by seat belts. The few injuries due to seat belts are less important than the death and injury prevented, both in autos and airplanes.

Search terms: Aviation accidents, Seat belts, Abdomen injuries, Ejection, Injury prevention, Fatalities, Accident studies

HS-004 430 Fld. 1/0,1/2

INJURIES TO CHILDREN IN AUTOMOBILE COLLISIONS  
by Arnold W. Siegel,  
Alan M. Nahum, Michael R. Appleby  
California Univ., Los Angeles. School of Medicine

Report no. SAE-680771

Study of 46 collisions with 82 child occupants, placing emphasis on the mechanism of injury production and child collision kinematics. Case histories illustrate injury patterns. Childhood growth characteristics as they affect injury patterns and restraint systems are discussed in detail. Current systems are analyzed and recommenda-

tions made, 21 conclusions are presented. Examples of effects of collisions in pregnancy and cases of restrained children are also included.

Search terms: Restraint systems, Physiology, Collisions (accidents), Children, Injuries, Pregnancy, Kinematics

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, pl-46 (HS-004 429)

HS-004 440 Fld. 1/0,1/3,1/2

A DETAILED INJURY SCALE FOR ACCIDENT INVESTIGATION  
by D. J. Van Kirk, W. A. Lange  
Wayne State Univ., Detroit, Mich.

Report no. SAE-680781

A program at Wayne State University is described.



## 1/2 Injuries (Cont.)

HS-004-440 (Cont.)

Accidents are analyzed in detail and an injury scale with six categories devised: minor, moderate, moderate-severe, severe, critical, and fatal. Occupants' injuries can be classified, and index developed for each body area in terms of force to produce injury, accident severity predicted, and human tolerance data developed which will be useful in auto design.

Search terms: Injury severity, Injury research, Accident investigation, Collisions (accidents), Impact tolerance, Impact studies, Automotive design, Accident severity

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p240-59 (HS-004 429)

HS-004 446 Fld. 1/0,1/2

SOME FACTORS CONTRIBUTING TO HEAD AND NECK INJURIES DURING WHOLE BODY IMPACT USING GUINEA PIG SUBJECTS IN ±Gx ORIENTATIONS by C. F. Lombard, W. A. Robbins, G. L. Potter Northrop Corporate Labs., Hawthorne, Calif.

Report no. SAE-680787

Various modes of head support systems were studied, using nonsurvivability and the incidence of cerebral hemorrhage as indexes of impact tolerance. Effects of impacts up to 600 G were studied at entrance velocities of 40, 60, and 80 feet per second. Head supports ranged from thin flat foam pads to contoured nonresilient foam support. At high G levels no additional protection seemed achievable. Neck is

the weak link limiting tolerance and survival.

Search terms: Headrests, Cerebral hemorrhage, Impact tests, Neck injuries, Head injuries, Velocity, Impact tolerance, Laboratory animals

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p338-51 (HS-004 429)

HS-004 453 Fld. 1/2

A "FIRST LOOK" AT INJURY IN '68 ACCIDENT CARS Anonymous

Published in Transportation Research Review 3rd/4th quarter p3-4 (1968)

Preliminary study of injury causes in accidents involving 219 cars which meet safety standards compared to 3,448 earlier models. In earlier models, 57.2% of drivers were injured by steering assembly, contrasted to 44.5% in cars equipped with energy-absorbing steering column. Usage of seat belts remained poor. While the newer cars are safer, further design improvements are needed.

Search terms: Injury factors, Safety standards, Secondary collisions, Steering columns, Seat belt usage, Energy absorption, Safety design, Motor vehicle design, Accident factors

HS-004 454 Fld. 1/2

MOTOR VEHICLE DEATHS IN LOUISIANA by Dudley Andry

Published in Journal of Louisiana State Medical Society v119 n9 p335-8 (Sep 1967)

Statistics are presented indicating that Louisiana has the highest mileage death rate in nation. Standards required by National

Traffic and Motor Vehicle Safety Act of 1966 are discussed. The medical profession is urged to play a role in traffic safety programs, especially in setting standards for emergency medical care.

Search terms: Accident rates, Fatalities, Louisiana, Insurance claims, Community support, Safety programs, Highway safety, National Traffic and Motor Vehicle Safety Act of 1966, Emergency medical services

HS-004 455 Fld. 1/2

THE MULTIPLE INJURY PATIENT Anonymous

Published in Ohio State Medical Journal v63 n6 p789-801 (Jun 1967)

A simulated patient was used to teach care of the severely injured. The patient was assumed to be an auto accident victim. Priorities in diagnosis and treatment are discussed.

Search terms: Multiple injuries, Emergency medical services, Diagnosis, Medical treatment

HS-004 456 Fld. 1/2

NEUROSURGICAL CONSIDERATIONS by Julius Stoll, Jr.

Published in Rhode Island Medical Journal v50 n3 p173-4 (Mar 1967)

Discusses diagnosis of head and spinal injuries suffered in highway accidents. Emphasizes importance of detecting fractures, hematoma, and other conditions requiring immediate treatment.

Search terms: Head injuries, Spinal injuries, Surgery, Fractures, Nervous system, Hematoma, Diagnosis, Automobile accidents

HS-004 468 Fld. 1/2

POSTTRAUMATIC LEFT VENTRICULAR

## 1/2 Injuries (Cont.)

HS-004-468 (Cont.)

### MYOCARDIAL INFARCTION AND RUPTURE IN INFANCY

by Albert C. Price,  
Richard Van Praagh,  
William P. Sears, Alexander  
S. Nadas

Published in Journal of  
Pediatrics v72 n5 p656-  
63 (May 1968)

An auto backed over the  
thorax of 18-month-old  
boy. Diagnosis, management,  
and pathogenesis of the case  
are described. Rupture  
occurred 13 days after the  
accident, and the child  
died. This is first known  
case of cardiac trauma  
secondary to external bodily  
injury in infants.

Search terms: Rupture,  
Myocardial infarct, Heart  
injuries, Children, Auto-  
mobile accidents, Case  
reports

HS-004 469 Fld. 1/2

### A REGIMEN FOR THE EARLY CARE OF THE PATIENT WITH CRUSHED CHEST

by William M. Herbert,  
Eva Schlessinger, Rubin  
Lewis, Paul C. Samson

Published in Journal of  
Trauma v4 p325-38 (1964)

Presents a classification  
of chest injuries resulting  
from auto accidents with  
rapid deceleration and im-  
pact against steering wheel  
or other objects. Recom-  
mends a team approach to  
care for the victims.

Search terms: Chest  
injuries, Medical treat-  
ment, Automobile accidents,  
Deceleration, Steering  
wheel impacts, Impact  
severity, Emergency medi-  
cal services, Nursing care

HS-004 499 Fld. 1/2

### INTESTINAL PERFORATION AND FACIAL FRACTURES IN AN AUTOMOBILE ACCIDENT VICTIM WEARING A SEAT BELT

by David Wyatt Aiken

Published in Journal of the  
Louisiana State Medical  
Society v115 n7 p235-6  
(Jul 1963)

Certain accident hazards  
not adequately avoided by  
use of seat belts are  
discussed, with report of  
an unusual case. Advocacy  
of shoulder harness for  
better traffic safety is  
urged on members of the  
medical profession. Phy-  
sicians should not assume  
that seat belts will protect  
abdomen from injury.

Search terms: Shoulder  
harnesses, Case reports,  
Community support,  
Seat belt injuries\*, In-  
juries, Facial injuries,  
Fractures\*, Intestines\*,  
Abdomen injuries

HS-004 470 Fld. 1/2

### REHABILITATION AFTER HEAD INJURY

by N. R. Lewis

Published in Proceedings of  
the Royal Society of Medicine  
v59 p623-5 (Jul 1966)

Three case histories are  
described, all motor vehicle  
accident victims. All suffer-  
ed mental problems to some  
degree. A general discussion  
of cases of 140 airmen of  
Royal Air Force who suffered  
head injuries, largely  
in motor vehicle accidents,  
is given. Types of mental  
defects resulting are  
discussed.

Search terms: Head injuries,  
Motor vehicle accidents,  
Case reports, Mental ill-  
ness, Great Britain, Brain  
injuries

HS-004 505 Fld. 1/3,1/2

### DRINKING DRIVERS AND DRIVING DRINKERS--THE NEED FOR MULTIPLE APPROACHES TO ACCIDENTS INVOLVING

### ALCOHOL

by Julian A. Waller

1967 28 refs

Persons involved in acci-  
dents & violations after  
drinking can be classified  
The death and injury asso-  
ciated with the use of the  
automobile have become a  
major health problem in  
the United States. Two  
important strategies can  
be developed in order to  
understand and attack the  
causes of trauma associated  
with auto use: 1) epide-  
miology and 2) systems  
analysis.

Search terms: Epidemio-  
logy\*, Systems analysis,  
Injury prevention, Acci-  
dent prevention, Highway  
safety

AVAILABILITY: In Mich. Univ.  
Prevention of Highway Injury,  
pl-2 (HS-004 500)

HS-004 508 Fld. 1/3,1/2

### DETERRENTS TO DRINKING AND DRIVING AND DRIVING IN ALCOHOL MISUSERS

by Bernard H. Fox

Public Health Service,  
Arlington, Va. Injury  
Control Program

1967 27 refs

Deterrents (rehabilitation,  
improved apprehension) and  
countermeasures (legislative,  
physiological, accident  
avoidance, detection of  
alcoholics and pre-alco-  
holics) are discussed.  
Several models of distri-  
bution of blood alcohol  
changes brought about by  
hypothetical deterrents,  
with estimated reduction  
of accidents are also  
presented.

Search terms: Drinking  
drivers, Alcoholism, Acci-  
dent prevention, Accident  
reduction, Blood alcohol  
levels\*, Diagnosis\*

AVAILABILITY: In Mich  
Univ. Prevention of  
Highway Injury, p51-62  
(HS-004 500)

## 1/2 Injuries (Cont.)

HS-004 520 Fld. 1/3,1/2

### BIOMECHANICS OF FACIAL INJURY

by John J. Swearingen

1967

Two case studies of injuries sustained in light aircraft accidents illustrate principles (load distribution and deceleration distance) for protecting body against impact forces. Minor injuries resulted from a severe crash where a semi-cylinder protected the instrument panel and fatal injuries were inflicted after a very moderate crash.

Search terms: Facial injuries, Biomechanics,

Instrument panels, Case reports, Injury protection, Aircraft accidents

AVAILABILITY: In Mich. Univ. Prevention of Highway Injury, p165-8 (HS-004 500)

HS-004 523 Fld. 1/3,1/2,5/14

### SEAT BELT INJURIES IN IMPACT

by R. G. Snyder,  
W. M. Crosby,  
C. C. Snow,  
J. W. Young,  
P. Hanson

1967 97 refs

Brings together clinical evidence concerning restraint system injuries, discussing gross biomechanics of trauma. The double shoulder harness (with lap belt) appears to offer greatest protection, while the single diagonal belt (without lap belt) seems the most dangerous type in certain impact situations.

Search terms: Seat belts, Shoulder harness, Biomechanics, Injuries, Impact tests, Pregnancy\*,

Animal experiments

AVAILABILITY: In Mich. Univ. Prevention of Highway Injury, p188-210 (HS-004 500)

HS-004 524 Fld. 1/3,1/2

### EXPERIMENTAL STUDIES ON THORACIC AND ABDOMINAL INJURIES

by Verne L. Roberts  
Michigan Univ., Ann Arbor.  
Highway Safety Research Inst.

1967 29 refs

Clinical & experimental studies on injuries to kidneys, spleen, liver; intestinal & abdominal perforation; ruptures of the aorta and bronchi; fractures of the sternum are reviewed. One disturbing finding is that 1/3 of the pedestrians or nonbelted auto occupants will die of closed wounds to the abdomen before they can be admitted to a treatment facility. Directions for future studies are offered.

Search terms: Abdomen injuries, Chest injuries, State of the art studies, Bibliographies, Animal experiments, Spleen\*, Liver\*, Kidney\*, Injuries

AVAILABILITY: In Mich. Univ. Prevention of Highway Injury, p211-15 (HS-004 500)

HS-004 560 Fld. 1/2

### ARTERIOGRAPHIC DEMONSTRATION OF LACERATION OF GREAT VESSELS SECONDARY TO BLUNT CHEST TRAUMA

by Thomas A. Freed,  
Lewis H. Bosher, Jr.

Published in Radiology v90 p88-9 (Jan 1968)

Case history of a young woman pinned under steering column of her overturned car. Surgical repair was successfully carried out. This is the first reported case in which arteriography demonstrates acute laceration and false aneurysm

formation involving two great vessels, the right innominate and left carotid arteries.

Search terms: Surgery\*, Chest injuries, Steering columns, Automobile accidents, Case reports\*, Arteries\*

HS-004 561 Fld. 1/2

### THE CERVICAL SYNDROME OR CERVICAL SOFT TISSUE ACCELERATION-DECELERATION INJURY

by J. S. Thiemeyer, Jr.,  
Curtis V. Spear,  
George G. Hollins, Jr.,  
George A. Duncan

Published in Virginia Medical Monthly v91 p321-8 (Aug 1964)

Examines the so-called whiplash trauma. The duration and severity of symptoms following injury to soft tissues of the neck by rear end automobile collision is frequently influenced by litigation. A large group of patients have been followed after statement of claims and the natural causes of this injury defined. Concludes that "cervical syndrome" is a definite entity with a resulting symptoms complex that lasts in duration from several days to two years and sometimes longer; symptoms are determined by the extent of initial injury to soft tissues of the neck and the course highly influenced by patients' emotional background, pain tolerance, and the existence of preexisting conditions.

Search terms: Whiplash injuries, Insurance claims, Neck injuries, Rear end collisions, Psychological factors

HS-004 562 Fld. 1/2

### DECELERATION INJURY OF THE THORACIC AORTA

by Carl B. Mason,  
G. Campbell Hobson

Published in Hawaii Medical

## 1/2 Injuries (Cont.)

HS 004-662 (Cont.)

Journal v26 n4 p312-6  
(Mar-Apr 1967)

Four case histories illustrate the need for increased appreciation of the possibility of aortic injury in high-speed deceleration accidents and of the possibility of surgical repair. Three of the four survived long enough to permit aortography and definitive treatment. One recovered.

Search terms: Deceleration, High speed, Motor vehicle accidents, Aorta\*, Chest injuries, Heart injuries, Case reports\*, Surgery\*

HS-004 563 Fld. 1/2

EXTRAHEPATIC BILIARY DUCTAL INJURY IN CLOSED TRAUMA  
by Willis P. Maier, William P. Lightfoot, George P. Rosemond

Published in American Journal of Surgery v116 p103-8  
(Jul 1968)

Case report of a motorcyclist injured in a collision with a truck. This is fourth case of hepatic duct injury due to closed abdominal trauma to be reported. This case was fatal. A tabulation of recorded cases of biliary ductal injury since the last literature review is included.

Search terms: Motorcycle accidents, Abdomen injuries, Bile ducts\*, Fatalities, Case reports\*, Trucks

HS-004 564 Fld. 1/2, 5/14

SEAT BELT INJURIES  
Anonymous

Published in British Medical Journal v3 n5609  
p4-5 (6 Jul 1968)

Discusses several accidents in which persons wearing seat belts suffered abdominal injuries. In all kinds of auto accidents except crash-

ing of the car, seat belts save lives. The cases in which they have caused injuries suggest that lap- and diagonal belts would be better, or that they were worn too loosely.

Search terms: Seat belts--injuries\*, Abdomen injuries, Crushing\*, Shoulder harnesses, Injury prevention

HS-004 565, Fld. 1/2

TRICUSPID INSUFFICIENCY.  
THE RESULT OF NONPENETRATING CARDIAC TRAUMA  
by Edward J. Jahnke, William P. Nelson, Gene V. Aaby, Gerald M. FitzGibbon

Published in Archives of Surgery v95 p880-7  
(Dec 1967)

Four new cases of tricuspid insufficiency, secondary to blunt trauma to the heart suffered in auto accidents, are described. The right cases previously reported in the literature are analyzed.

Search terms: Heart injuries, Case reports\*, Automobile accidents, Surgery\*

HS-004 569 Fld. 1/3, 3/11, 1/

THE PATHOLOGY OF PEDESTRIAN AUTOMOTIVE ACCIDENT VICTIMS  
by James R. McCarroll, Paul W. Braunstein, Sidney B. Weinberg, Michael G. Seremetis, William Cooper

Grant-PHS-AC-00019

Published in Journal of Trauma v5 n3 p421-6 (1965)

Principal pathologic lesions sustained by 200 pedestrians killed by autos in New York City in an 18-month period are presented. Most died as a result of blunt trauma with relatively little surface evidence of serious internal injury. Certain superficial lesions are described which were found regularly to accompany spe-

cific internal lesions. Head injuries were leading cause of death. Neck, spine, and abdomen injuries also caused many deaths.

Search terms: Pedestrian accidents, Internal injuries, Fatalities, Abdomen injuries, Neck injuries, Spinal injuries, Head injuries

HS-004 607 Fld. 5/14, 1/2

COMPARISON OF OCCUPANT INJURIES WITH AND WITHOUT SEAT BELTS  
by Donald F. Huelke, William A. Chewing  
Michigan Univ., Ann Arbor

13p  
Report no. SAE-690244  
Presented at International Automotive Engineering Congress, Detroit, Mich.  
13-17 Jan 1969

Seat belts reduce the occupant's potential for striking certain structures and decrease severity of the injuries. It also functions to direct the upper torso, especially the head, to specific interior surfaces, whose design should be modified to prevent serious facial fractures. Lap belted drivers hit steering wheel rim or instrument panel in head-on crashes; front passenger hits the upper instrument panel. Improper positioning of lap seat belts produces serious abdominal injury, especially in rear passengers. Seat belt fatality cases were mostly due to collapse of the occupant space.

Search terms: Secondary collisions, Seat belts, Abdomen injuries, Head injuries, Fatalities, Collapse, Injury severity, Motor vehicle design, Fractures\*, Facial injuries, Head on collisions, Steering wheels, Instrument panels, Seat belts--Injuries\*

AVAILABILITY: From SAE

## 1/2 Injuries (Cont.)

HS-004 617 Fld. 1/2

ECONOMIC ASPECTS OF  
"WHIPLASH" INJURY  
by Gordon H. Snow

Published in California  
Medicine v101 n4 p261-2  
(Oct 1964)

Presented at Symposium  
on Injuries and Diseases  
of the Neck and Shoulder  
at the 92nd Annual Session  
of the California Medical  
Association, Los Angeles,  
24-27 Mar 1963

The term "whiplash," used  
to describe neck injuries  
received in an auto acci-  
dent, has no foundation in  
medical science to support  
the complaints of persons  
suing for damages but is  
gaining unwarranted popu-  
larity. "Whiplash" cases  
account for an estimated  
30% of all auto accident  
injuries. In 1961 an  
estimated \$580,000,000  
was paid in compensation of  
neck injuries out of a total  
of one billion seven hundred  
million dollars injury  
compensation. Author sug-  
gests that whiplash is a  
psychosomatic factor.

Search terms: Neck in-  
juries, Whiplash injuries,  
Insurance claims, Economic  
factors, Legal factors,  
Psychological factors,  
Automobile accidents

HS-004 618 Fld. 1/2

FACE FRACTURES IN MOTOR  
ACCIDENTS  
by J. T. Hueston,  
R. M. Cook,  
A. Langford

Published in Medical  
Journal of Australia v1  
n25 p940-1 (20 Jun 1964)

114 patients with major  
facial fractures have been  
studied in relation to the  
car interior in which the  
injury was sustained. The  
dashboard, the windshield,  
and the steering wheel are  
the most important instru-

ments of injury to the face  
in accidents. A high inci-  
dence of associated injuries  
was found in front seat  
occupants. Most of these  
severe facial injuries  
would have been prevented by  
use of seat belts. Study  
was made in Melbourne,  
Australia.

Search terms: Facial  
injuries, Fractures\*,  
Secondary collisions,  
Windshields, Steering  
wheels, Instrument panels,  
Seat belts, Injury  
prevention, Front  
compartments

HS-004 619 Fld. 1/2

RUPTURE OF THE OESOPHAGUS  
FROM BLUNT EXTERNAL TRAUMA  
by D. W. Blair, D. D. Hart,  
W. D. Mackay, K. L. G. Mills

Published in Journal of the  
Royal College of Surgeons  
of Edinburgh v13 p46-8  
(Jan 1968)

Reports on a case in which a  
woman was thrown from a car  
in which she was a rear-seat  
passenger. She suffered  
multiple injuries including  
esophageal rupture, which is  
rare from external injury.  
This condition is difficult  
to diagnose in severely in-  
jured or unconscious patients.  
The case described was fatal.  
It is recommended that large  
hospitals should have accident  
units with a staff experienced  
in dealing with severe injuries  
and able to assign priorities  
in treatment.

Search terms: Neck injuries,  
Chest injuries, Fatalities,  
Ejection, Medical treatment,  
Multiple injuries\*, Injuries\*,  
Automobile accidents,  
Esophagus\*, Hospitals\*,  
Rupture\*, Diagnosis\*,  
Case reports\*, Rear  
compartments

HS-004 620 Fld. 1/2

TREATMENT OF FRACTURES OF  
THE MAXILLA AND MANDIBLE  
by Donald E. Casey

Published in Surgical  
Clinics of North America  
v48 n1 p191-200 (Feb 1968)

This type of fracture often  
results from the increased  
velocity and number of auto-  
mobiles and has played a  
part in auto safety legisla-  
tion. They often occur in a  
patient with multiple injuries  
and serve to protect the  
brain by using up some of the  
impact force. Techniques for  
repairing them are outlined.

Search terms: Fractures\*,  
Facial injuries, Safety  
laws, Velocity, Impact  
tolerance, Medical treat-  
ment, Maxilla\*, Mandible\*,  
Multiple injuries\*,  
Injuries\*

HS-004 679 Fld. 1/2

HEPATIC TRAUMA, WITH PAR-  
TICULAR REFERENCE TO BLUNT  
INJURY

by Paul H. Kindling,  
Robert F. Wilson,  
Alexander J. Walt

Published in Journal of  
Trauma v9 n1 p17-26  
(Jan 1969)

Reviews the cases of 303  
patients with liver injuries,  
34 of whom were auto acci-  
dent victims. Fractures  
were common in pedestrians  
and lacerations in drivers  
and passengers. About  
half the patients with blunt  
liver injury die before ad-  
mission to the hospital and  
about 30% of those admitted  
die afterwards. While  
blunt trauma constituted a  
small percentage of the  
cases studied, the compli-  
cations and mortality were  
disproportionately high.

Search terms: Liver  
injuries, Fatalities,  
Automobile accidents,  
Pedestrian accidents,  
Fractures\*

HS-004 741 Fld. 1/3,1/2

ACCIDENT INVESTIGATIONS OF  
THE PERFORMANCE CHARACTERISTIC  
OF ENERGY ABSORBING STEERING  
COLUMNS

by Donald F. Huelke,  
William A. Chewing  
Michigan Univ., Ann Arbor

## 1/2 Injuries (Cont.)

HS 004-741 (Cont.)

13-17 Jan 1969 16p 5 refs  
Report no. SAE-690184  
Presented at the  
International Automotive  
Engineering Congress,  
Detroit, Mich.

Field investigations of auto collisions (vehicles with energy absorbing steering columns) show a significant reduction in serious and fatal injuries to drivers. Compression of the steering column in head-on collisions, however, is resulting in more facial injuries through impact with the instrument panel.

Search terms: Performance characteristics, Energy absorption, Steering columns, Accident data, Injuries, Crash research, Case reports\*

AVAILABILITY: From SAE

HS-004 796 Fld. 5/18,1/2

FIELD EXPERIENCE WITH THE  
ENERGY ABSORBING STEERING  
COLUMN

by L. C. Lundstrom,  
W. G. Cichowski  
General Motors Proving  
Ground, Milford, Mich. and  
General Motors Corp.,  
Detroit, Mich.

13-17 Jan 1969 13p 9 refs  
Report no. SAE-690183  
Presented at International  
Automotive Engineering  
Congress, Detroit, Mich.

Compares raw accident data with field data obtained by examining 3,000 GM vehicles involved in accidents. Concludes that the energy absorbing steering column is of substantial benefit in reducing injuries where impact is in forward direction.

Search terms: Steering columns, Energy absorption, Accident data, Injury

prevention, Crash research, Head on collisions, Speed, Impact studies, Impact injuries, Head injuries, Seat belt usage\*, Case reports\*, Field tests

AVAILABILITY: From SAE

HS-004 909 Fld. 5/18,1/2

CORRELATION OF ACCIDENT  
AND LABORATORY IMPACTS TO  
ENERGY-ABSORBING STEERING  
ASSEMBLIES  
by L. M. Patrick,  
D. J. Van Kirk  
Wayne State Univ., Detroit,  
Mich. Biomechanics Research  
Center

13-17 Jan 1969 16p  
Report no. SAE-690185  
Presented at International  
Automotive Engineering  
Congress, Detroit, Mich.

Compares results of simulated impact with actual injuries observed in cars with collapsible steering columns. Future design requires maintenance of passenger compartment integrity and a non-deforming steering wheel.

Search terms: Laboratory experiments, Impact studies, Energy absorption, Steering columns, Accident data, Impact sleds, Seat belt usage\*, Chest injuries, Head on collisions, Back injuries, Deformation, Facial injuries, Head injuries, Injury severity, Case reports\*

AVAILABILITY: From SAE

HS-004 918 Fld. 1/2,1/3,5/14

MECHANISMS OF SERIOUS  
LOWER LIMB INJURIES TO MOTOR  
VEHICLE OCCUPANTS

by E. Grattan, J. A. Hobbs  
Road Research Lab.,  
Crowthorne, Berks. (England)

1968 81p  
Report no. RRL-LR-201

Purpose of investigation was to determine cause of injury and the directions in which force acts upon human body, both restrained and unrestrained.

Injuries investigated were fractures and fracture dislocations of hip joint, fractures of the femur, patella, and upper end of the tibia and fibula. While seat belt wearers show a considerable reduction in the over-all serious injury rate, they appear to sustain the same varieties of skeletal injury to the lower limb.

Search terms: Fractures\*, Injury research, Injury severity, Leg injuries, Pelvic injuries, Seat belts, Restraint systems, Accident severity, Automobile accidents, Deformation, Case reports\*, Safety design, Energy absorption

AVAILABILITY: From  
corporate author

HS-004 921 Fld. 1/3,1/2

AN EPIDEMIOLOGICAL STUDY  
OF ROAD TRAFFIC ACCIDENT  
CASES ADMITTED IN SAFDARJANG  
HOSPITAL, NEW DELHI  
by S. P. Mehta

Published in Indian Journal  
of Medical Research v56 n4  
p456-66 (Apr 1968) 11 refs

Road traffic accidents now constitute a public health problem. This study investigated causal factors of accidents resulting in 297 hospital admissions. Based on these findings, preventive measures in general and particularly with reference to pedestrians and pedal cycle riders have been suggested.

Search terms: India\*, Accident types, Traffic accidents, Accident data, Injuries

HS-004 925 Fld. 1/3,1/2

TRAFFIC DEATHS IN LAKE  
COUNTY INDIANA: A TWO-  
YEAR STUDY  
by W. P. Loh, A. S. Williams

Published in Medical Times  
v96 n10 p982-7 (Oct 1968)

Accident type, time, and cause are analyzed. Speed-

## 1/2 Injuries (Cont.)

HS-004-925 (Cont.)

ing, loss of control, and disobeying signals were found to be the three leading causes of accidents. Defective automobiles were responsible in only five accidents. Three essentials for traffic safety are described: safe driver, safe automobile, safe road.

Search terms: Traffic accidents, Fatalities, Accident causes, Indiana\*, Unsafe speed, Accident types, Traffic safety, Age factor in accidents, Sex factor in accidents, Accident data, Blood alcohol levels\*

HS-004 962 Fld. 1/2,1/3,5/14

EJECTION IN CAR ACCIDENTS  
by M. M. Miller,  
H. J. H. Starks  
Road Research Lab.,  
Crowthorne, Berks. (England)

1968 36p 24 refs  
Report no. RRL-LR-190

Type of accident, safety belt usage, glass area, door latches, type of road, are some of the factors affecting ejection of occupants at time of crash. 50% of those ejected were killed, 1/3 were seriously injured, all the remainder were slightly injured.

Search terms: Ejection, Injuries, Fatalities, Damage, Automobile accidents, Statistical analysis, Injury severity, Safety belts, Drivers, Passengers

AVAILABILITY: From corporate author

HS-004 963 Fld. 1/2,1/3,4/7

FATAL AND INJURY ACCIDENT RATES ON FEDERAL-AID AND OTHER HIGHWAY SYSTEMS, 1967

Bureau of Public Roads,  
Washington, D. C.

1969 40p

Statistical tables give fatality rate trends by highway system; fatality and fatal-accident rates by highway system and state; injury and injury-accident rates by highway system and state; fatality and injury data related to vehicle registrations, population, and licensed drivers; fatalities, fatal accidents, and travel; injuries, injury accidents, and travel.

Search terms: Statistics\*, Accident data, Interstate highway system, Fatalities, Injuries, Accident types, Motor vehicle registration, Populations, Driver licensing, Highway usage, Federal aid, Rural highways, Accident rates, Vehicle miles\*

AVAILABILITY: From GPO \$0.45

HS-004 964 Fld. 1/2

AN UNUSUAL INJURY DUE TO THE SEAT BELT  
by Stephen H. Tolins

Published in Journal of Trauma v4 p397-9 (1964)  
7 refs

Case history of "seat belt syndrome," in which the victim suffered abdominal injuries during an auto accident. Surgical repair was necessary. The use of the combined lap-shoulder belt rather than the seat belt is urged.

Search terms: Abdomen injuries, Surgery\*, Seat belts, Automobile Accidents, Shoulder harnesses, Case reports\*

HS-005 008 Fld. 1/2,5/14

ACCIDENTS AND INJURIES TO CAR OCCUPANTS WEARING SAFETY BELTS  
by Geoffrey Grime

Published in Automobile Engineer v58 n8 p292-300  
(Jul 1968) 7 refs

Data in accident reports submitted by motorists have been analyzed for accident type, injury type, secondary collisions with a part of the car, injuries caused by the belt, speed at time of accident, risk of injury to rear seat passengers. Twelve conclusions are presented.

Search terms: Safety belts, Accident data, Accident types, Injury research, Secondary collisions, Seat belts, Speed, Rear compartments, Passengers, Accident analysis, Seat belt design, Hazards

HS-005 009 Fld. 1/2

CAUSES OF INJURY IN MOTOR VEHICLE ACCIDENTS: A RESEARCH STRATEGY  
by Samuel H. Brooks,  
Alan M. Nahum, Arnold W. Siegel

Published in Archives of Environmental Health v17 p951-6 (Dec 1968) 12 refs

Grant PHS-UI-00006

A study of injury minimization by means of clinical inference and statistical analysis. The first method relies on single and multiple case studies to determine the causes of injuries; the second method depends on selection of the sample, collection of data, and analysis of data. Criteria for statistical analysis of accident data are discussed.

Search terms: Injury research, Statistical analysis, Case reports\*, Injury prevention, Motor vehicle accidents, Data acquisition, Accident data

HS-005 010 Fld. 1/2,5/14

INJURIES DUE TO AUTOMOBILE SEAT BELTS  
by Frank R. DiFiore,  
Ock-Min Gin



## 1/2 Injuries (Cont.)

HS-005-010 (Cont.)

Published in American Surgeon v34 n11 p828-30 (Nov 1968) 5 refs

Eleven cases of injury attributable to seat belts have been presented. In addition to obvious injuries, several cases of latent abdominal injuries have been seen, and physicians treating such patients should maintain their vigilance over a period of several days. Physical principles relating to the mechanism by which such injuries are produced have been described.

Search terms: Seat belts, Case reports\*, Abdomen injuries, Physicians\*, Hazards

HS-005 011 Fld. 1/2,5/14

THE SEAT BELT SYNDROME.  
THE SEAT BELT SIGN,  
INTESTINAL AND MESENTERIC  
INJURIES  
by Kemp B. Doersch,  
William E. Dozier

Published in American Journal of Surgery v116 p831-3 (Dec 1968) 8 refs

Describes three cases of severe injuries in patients using seat belts in head-on collisions. As more patients are saved from ejection and death by the use of seat belts, physicians will need to become increasingly aware of the possibility of intra-abdominal injuries in auto crash victims.

HS-005 033 Fld. 5/3,1/2,3/3

THE EFFECT OF COMPULSORY  
SAFETY HELMETS ON MOTOR-  
CYCLE ACCIDENT FATALITIES

by L. A. Foldvary,  
J. C. Lane

Published in Australian Road Research v2 n1 p7-24 (Sep 1964) 24 refs

Analyzes the effect of safety

helmets on fatalities, using before and after statistics. Compliance with the law has been close to 100%, and motorcycle fatalities for the first two years have been reduced by half. The helmets are economical, and their compulsory use is recommended to other jurisdictions. Figures are for the state of Victoria, Australia, and are compared with figures for other Australian states not requiring helmets.

Search terms: Motorcycle safety, Motorcycle accidents, Helmets, Fatalities, Safety laws, Accident data, Australia\*, Head injuries

HS-005 051 Fld. 1/2, 1/3

NEUROTRAUMATIC ADMISSIONS  
TO A TEACHING HOSPITAL: A  
RETROSPECTIVE STUDY: PART 4.  
NEUROTRAUMA AFTER ROAD  
ACCIDENTS

by B. R. Selecki, R. J. Hoy, P. Ness

Published in Medical Journal of Australia v2 n12 p490-3 (21 Sep 1968)

Patterns of injury and results of treatment for victims of automobile, motorcycle, bicycle accidents are discussed. The following accident factors are considered: age groups, alcohol, restraint systems, water filled plastic containers fitted on bumpers, helmets.

Search terms: Intoxication, Injuries, Head injuries, Spinal injuries, Automobile accidents, Motorcycle accidents, Bicycles, Pedestrian accidents, Age factor in accidents, Accident rates, Fatalities, Injury research

HS-005 052 Fld. 1/2

WHIPLASH INJURY AND TRAFFIC  
ACCIDENTS

by S. E. Acres

Published in Medical Services Journal of Canada v22 p813-4 (Oct 1966)

Discusses several studies which take opposing points of view about the whiplash injury problem, some claim-

ing that it is of neurotic origin and some accepting it as a genuine injury. Gives figures on the increasing incidence of rear-end collisions in which whiplash can occur. Comments on the use of headrests to prevent this type of injury.

Search terms: Whiplash injuries, Psychological factors, Neck injuries, Rear end collisions, Headrests, Injury prevention

HS-005 090 Fld. 5/14, 3/2, 1/2

ENGINEERING FOR BODILY  
STRESS

by Verne L. Roberts

Published in Science and Technology n70 p72-82 (Oct 1967)

Examines the world of the automobile as a biomechanical engineer sees it: in terms of the human body—its function, size, and ability to resist forces. Future research should include mathematical models of the body, more realistic dummies as human simulators, improved instrumentation for biomedical analysis.

Search terms: Biomechanics, Human body simulation, Human factors engineering, Restraint systems, Dummies, Safety design, Energy absorption, Steering wheels, Passenger packaging, Injuries, Medical treatment, Occupant protection\*, Biomechanics



## 1/2 Injuries (Cont.)

HS-005 097 Fld. 1/2; 1/3

### ANALYSIS OF DEATHS ON NEW SOUTH WALES ROADS 1935-1967

by R. J. Vaughan

Published in *Australian Road Research* v3 n6 p33-7 (Jun 1968)-

Analyzes the number of deaths on N.S.W. roads for 1935-67. For data covering 1947-66, a linear regression was fitted from which test statistics were calculated to determine if a drop in deaths from one year to the next was significant. The purpose of this analysis is to judge the significance of increases or decreases in annual death rates.

Search terms: Regression analysis\*, Fatalities, Australia\*, Motor vehicle accidents, Statistical analysis, Accident analysis

HS-005 098 Fld. 1/3; 1/2

### CHICAGO'S 1968 TRAFFIC DEATH RATE LOWEST OF BIG CITIES

Anonymous

Published in *Chicago Traffic Safety Review* (Jan-Feb 1969) 4p

Among the aspects of the safety problem discussed are: traffic fatalities, drunk driving, traffic courts, traffic law enforcement, traffic congestion, the Highway Safety Act of 1966, police training, driver education, and pedestrian accidents.

Search terms: Accident rates, Fatalities, Drinking drivers, Driver intoxication, Traffic courts, Traffic law enforcement, Traffic congestion, Highway Safety Act of 1966\*, Police, Driver education, Pedestrian accidents, Chicago\*

HS-005 131 Fld. 5/14, 1/2

### INJURY PRODUCED BY SEAT BELTS: REPORT OF 2 CASES

by Peter Fisher

Published in *Journal of Occupational Medicine* v7 p211-2 (May 1965) 10 refs

Accounts of ruptured spleen, frac-

tured ribs, and intestinal injuries sustained in an automobile collision by two passengers, each of whom was wearing a three-point combination lap

and diagonal belt. Reports of studies showed that seat belt injuries were becoming more numerous, but additional statistics cited indicated the over-all injury rate was 51% lower in belt wearers.

Search terms: Seat belts, Case reports\*, Shoulder harnesses, Injury prevention, Intestinal injuries\*, Splenic injuries\*, Fractures\*, Motor vehicle accidents, Accident data, Chest injuries, Abdomen injuries

HS-005 132 Fld. 5/14, 1/2

### THIRTY-THREE FATAL CRASHES WITH SEAT BELTS

by Horace E. Campbell

Published in *Rocky Mountain Medical Journal* v61 n8 p27-9 (Aug 1964)

Examines the reasons seat belts failed to protect lives. Five drivers were killed by steering shaft, which was displaced into the drivers' seating space 1½ to 2½ feet. Eight of the accidents were rollovers, in four of which car doors opened. Shoulder harness is needed to keep head and torso inside the car in such cases. Seat belts cannot prevent death from crushing of the car interior; better design is needed. Motorists need to wear seat belts and upper torso restraints, and autos need to provide more side impact protection and safer steering assembly.

Search terms: Motor vehicle design, Safety design, Rollover accidents, Seat belts, Shoulder Harnesses, Fatalities, Accident analysis, Crushing\*, Steering columns, Side impact collisions, Head injuries, Chest injuries, Torso restraint, Steering wheel rearward displacement

HS-005 137 Fld. 1/2; 5/14

### SEAT BELT INJURIES AND LEGAL ASPECTS

by J. W. McRoberts

Published in *Industrial Medicine and Surgery* v34 n11 p866-9 (Nov 1965) 9 refs

Read at the 40th anniversary Congress of the Pan American Medical Association, Miami Beach, Florida, April 29-May 2, 1965.

Wisconsin legislation requires installation of seat belts. Courts may assess a percentage of damages as "cost" of contributory negligence. Faulty positioning of belts probably caused abdominal injuries from automobile accidents in cases described.

Search terms: Wisconsin\*, Legislation, Courts, Automobile accidents, Negligence\*, Seat belts, Abdomen injuries, Case reports\*

HS-005 201 Fld. 1/2; 5/14

### FULCRUM FRACTURES OF THE LUMBAR SPINE. TRANSVERSE FRACTURE INDUCED BY AN IMPROPERLY PLACED SEAT BELT

by Willard J. Howland; Joseph L. Curry; Carroll B. Buffington

Published in *Journal of the American Medical Association* v193 n3 p240-1 (19 July 1965) 7 refs

A first report, this injury emphasizes the importance of wearing seat belts in a low tight position over the pelvis. The auto accident victim, a 19-year old boy, was wearing his seat belt too high.

Search terms: Seat belts; Spinal injuries; Fractures\*; Automobile accidents; Case reports\*; Young adult drivers\*

HS-005 279 Fld. 3/1; 1/2

### HOLIDAY DRINKING AND HIGHWAY FATALITIES

by Julian A. Waller

Published in *Journal of the American Medical Association* v206 n12 p2693-7 (16 Dec 1968) 14 refs

Blood alcohol concentrations, liver conditions, and arrests were studied for 1,251 California fatalities. 58% of the drivers, 47% of the passengers, and 36% of the pedestrians had alcohol in their blood; about two-thirds were associated with fatty livers or previous arrests. No difference was found in Christmas season figures. Most alcohol-associated fatalities throughout the year involve problem drinkers.

## 1/2 Injuries (Cont.)

HS-005-279 (Cont.)

Search terms: Blood alcohol levels\*; Liver diseases\*; Driver records; Drinking drivers; Alcoholism; Driver intoxication; Fatalities; Accident analysis; Seasons\*; Drivers; Pedestrians; Passengers

HS-800 148 Fld. 1/2

### WORKSHOP ON TRAUMA, WASHINGTON, D.C. SUMMARY REPORT

National Academy of Sciences—National Research Council, Washington, D.C.

10-12 Oct 1968 46p

Contract FH-11-7002; DA-49-193-MD-2077; PH-43-64-44

Report no. PB-184 131

Workshop was devoted to the scientific assessment of accidental death and disability with stress on musculo-skeletal injuries and complications resulting from auto accidents. The inadequate recording of data, especially in autopsy records, is stressed. More research on trauma is needed among orthopedic surgeons and others involved with musculo-skeletal injuries. Research on human tolerance levels to injury and on intravascular sludging and clotting in massive trauma cases is needed. Recommendations for record keeping and research are outlined. Sample medicolegal autopsy report forms are included.

Search terms: Forensic medicine\*; Autopsies\*; Injury research; Fatalities; Musculoskeletal system; Automobile accidents; Accident data; Orthopedics\*; Injury tolerance; Multiple injuries\*; Blood coagulation\*; Accident records

AVAILABILITY: CFSTI as PB-184 131

HS-005 378 Fld. 1/1; 1/2

### VEHICLE ACCIDENTS: IMMEDIATE CARE TO BACK INJURIES

by Louis C. Kossuth

Published in *Journal of Trauma* v6 n5 p582-91 (1966)

Examines the problem of giving immediate care to back injuries incurred in vehicle accidents. The use of splints and other equipment is described. Types of back injuries suffered in vehicle accidents are discussed.

Search terms: Back injuries; Care of injured; Splints\*; Medical treatment; First aid; Motor vehicle accidents

HS-005 380 Fld. 1/2; 3/11

### A STUDY OF PEDESTRIAN FATALITIES IN WAYNE COUNTY, MICHIGAN

by Donald F. Huelke; Rollin A. Davis

Michigan Univ., Ann Arbor. Highway Safety Research Inst.

1969 59p 15 refs  
Report no. HSRI-Bio-9

Pedestrian fatalities for a two year period are charted according to age, sex, time, alcohol involvement, pedestrian actions, road conditions, weather and lighting conditions, and injury locations. An appendix contains fifty-eight brief case reports indicating each accident situation, vehicle type, police estimated speed, and the fatal injuries of pedestrians.

Search terms: Michigan\*; Pedestrian behavior; Pedestrian accidents; Accident causes; Fatalities; Injuries; Injury severity; Age factor in accidents; Sex factor in accidents; Time factors\*; Blood alcohol levels\*; Road conditions; Case reports\*; Accident analysis; Accident rates; Weather; Night driving; Speed; Environmental factors; Accident data

AVAILABILITY: Corporate author

HS-005 418 Fld. 1/2

### VOLKSWAGEN FATAL FIRE ACCIDENTS 1967

New York (State). Dept. of Motor Vehicles, Albany.

30 Aug 1968 6p

In 1967 New York State experienced 2,595 fatal accidents of which 139 involved Volkswagen cars. Three (2.2%) of these 139 accidents

involved fire. During March 1968 fire was involved in 6 (2.7%) of 224 fatal accidents, none of which involved Volkswagens. Volkswagens do not appear to have a higher propensity of fatal fire accident involvement.

Search terms: Fatalities; Volkswagens\*; New York\*; Fires; Accident data

AVAILABILITY: Corporate author

HS-005 419 Fld. 1/2

### SURVIVAL AFTER FATAL TRAFFIC ACCIDENTS

by J. I. Tonge; A. S. Czechowicz; J. S. Robertson

Published in *Lancet* v22 p670 (23 Sep 1967)

This letter to the editor discusses the need for a "cut-off" time in collecting statistics on deaths from traffic accidents. Periods of survival were determined for accident victims, and mean survival curves were plotted. It is recommended that a 30 day cut-off in reporting traffic-accident mortality be adopted.

Search terms: Accident data; Fatalities; Accident records; Accident analysis

HS-005 566 Fld. 1/2

### NECK INJURY TO WOMEN IN AUTO ACCIDENTS. A METROPOLITAN PLAGUE

by Charles H. Schutt; F. Curtis Dohan

Published in *Journal of the American Medical Association* v206 n12 p2689-92 (16 Dec 1968)

Examines the whiplash injury problem and rejects the view that it is due to neurosis, malingering, or pending litigation. Presents an organic basis for whiplash injury, which is prevented by proper headrests. About half the whiplash injuries studied occurred in rear-end collisions. Absence from work averaged eight weeks, and symptoms continued more than six months in about 75% of the cases, whether litigation was pending or not.

Search terms: Whiplash injuries; Rear end collisions; Neck injuries;

## 1/2 Injuries (Cont.)

### HS-005-566 (Cont.)

Psychological factors; Insurance claims; Headrests; Females\*

HS-005 601 Fld. 5/14; 1/2

### UNUSUAL ABDOMINAL INJURIES DUE TO SEAT BELTS

by Roy Gerritsen; Alfred S. Frobese; J. Pezzi

Published in *Journal of the Albert Einstein Medical Center* v14 p63-6 (1966)

Two case histories are described. The mechanism of injury is discussed; both persons were injured in the same accident and had similar injuries. Diagnosis of seat belt injuries is discussed.

Search terms: Seat belts; Abdomen injuries; Diagnosis\*; Case reports\*

HS-005 610 Fld. 1/2; 5/3

### THE MOTOR-SCOOTER-HANDLEBAR SYNDROME

by V. Deutsch; A. Sinkover; H. Bank

Published in *Lancet* v2 n7577 p1051-3 (16 Nov 1968)

Describes three cases of young adult men who suffered acute blunt injury of the external iliac artery after road accidents. They were struck by the handlebar when their scooters fell. Delay in diagnosis may make complications more likely and surgical correction more difficult.

Search terms: Case reports\*; Diagnosis\*; Surgery\*; Motor scooter accidents\*; Abdomen injuries; Leg injuries; Arteries\*

HS-005 611 Fld. 1/2; 5/14

### THE AUTOMOTIVE SAFETY BELT: IN SAVING A LIFE MAY PRODUCE INTRA-ABDOMINAL INJURIES

by James S. Williams; Bert A. Lies, Jr.; Harry W. Hale, Jr.

Published in *Journal of Trauma* v6 n3 p303-13 (1966)

Four case histories are described. The mechanism of injury is discussed, and

the use of shoulder harness in addition to lap belt is recommended. Early diagnosis and treatment are essential in the management of abdominal injuries from safety belts. Diagnostic criteria are outlined.

Search terms: Shoulder harnesses; Seat belts; Abdomen injuries; Diagnosis\*; Case reports\*

HS-005 668 Fld. 1/2; 5/14

### CAR SEAT-BELTS. AN ANALYSIS OF THE INJURIES SUSTAINED BY CAR OCCUPANTS

by R. D. Lister; Barbara M. Milsom

Published in *Practitioner* v191 p332-40 (Sep 1963)

The details of 600 car accidents in which 837 drivers or front-seat passengers were wearing seat-belts have been analyzed. The types of seat belts in use and the injuries sustained by the wearers are described as well as the injuries sustained in the same accidents by persons not wearing seat-belts. The wearing of seat-belts resulted in a considerable reduction in injuries.

Search terms: Seat belts; Seat belt usage\*; Injuries; Fatalities; Shoulder harnesses; Seat belt design; Injury prevention; Great Britain\*; Drivers; Passengers; Injury factors; Front compartments; Accident analysis

HS-005 720 Fld. 5/14; 1/2

### SEAT-BELT INJURY: INJURY OF THE ABDOMINAL AORTA

by Dudley K. Campbell; Raymond F. Austin

Published in *Radiology* v92 p123-4 (Jan 1969) 11 refs

Vertebral fracture; laceration of inferior vena cava and intestines; and third degree burn of abdomen attributed to seat belt were followed by dissection of the aortic wall. A review of the literature reveals this to be the first case report of abdominal aortic injury due to lap-type seat belt.

Search terms: Case reports\*; Seat belts; Hazards; Burns (Injuries); Abdomen injuries; Spinal injuries; Aorta\*; Injuries; Intestines\*

HS-005 729 Fld. 1/2

### INJURIES TO HIP JOINT IN CAR OCCUPANTS

by E. Grattan; J. A. Hobbs

Published in *British Medical Journal* v1 p71-3 (11 Jan 1969) 8 refs

Injuries to hip joints that occur in car occupants after road accidents are discussed. It is suggested that central fracture dislocations might be prevented, or their severity minimized, by strengthening the sides of cars and of car doors and by improving the energy absorption characteristics of the instrument panel. Some case reports are given.

Search terms: Safety design; Fractures\*; Hip joints\*; Instrument panels; Injury prevention; Energy absorption; Doors; Automobile design; Case reports\*

HS-005 730 Fld. 1/2

### THE NATURE AND CAUSES OF MAJOR ROAD INJURIES IN AND AROUND A PROVINCIAL CITY

by William Gissane

Published in *Annals of Occupational Hygiene* v5 p85-93 (Apr-Jun 1962)

A Road Injuries Research Group has been formed at Birmingham (England) Accident Hospital to study the nature and causes of injuries. They have analyzed 574 serious injury cases and 230 fatalities. Patterns of injury and death are discussed for drivers, motorcyclists, pedestrians. The role of safer car design and restraint systems in preventing injury and death is outlined.

Search terms: Safety design; Injury severity; Secondary collisions; Fatalities; Great Britain\*; Injury prevention; Motorcycle accidents; Pedestrian accidents; Restraint systems; Injury factors; Accident factors

HS-005 822 Fld. 5/18; 1/2

### ENERGY-ABSORBING STEERING COLUMN SUCCESSFULLY REDUCES INJURY BUT NEW IMPACT PATTERNS EMERGE

by Louis C. Lundstrom; William G. Cichowski; Donald F. Huelke; William A. Chewing; L. M. Patrick; Donald J. Van Kirk; John W. Garrett

## 1/2 Injuries (Cont.)

HS-005-822 (Cont.)

Published in *SAE Journal* v77 n5 p60-4 (May 1969)

First year's experience with collapsible steering columns shows that injury severity is reduced, even in high speed front-end collisions; injury increases with crash severity; the load required to crush the column does not produce injury; there is a greater chance of the head striking the vehicle interior, generally the instrument panel in front of the steering wheel; and the column does not always collapse as it is supposed to, causing injury from the deformed steering wheel.

Search terms: Steering columns; Energy absorption; Instrument panels; Head injuries; Secondary collisions; Steering wheel impacts\*; Injury severity; Injury prevention; Head on collisions; High speed; Accident severity; Loads (forces); Deformation; Fatalities

HS-005 862 Fld. 1/2; 3/9

### NATURAL DEATH AT THE WHEEL

by Irma West; George L. Nielsen; Allan E. Gilmore; John R. Ryan

Published in *Police* v13 v4 p89-95 (Mar-Apr 1969) 25 refs

Two-year study of 1,026 California drivers who died within 15 minutes of single-vehicle accidents shows that 15% died of natural causes, chiefly coronary artery disease. Most were men averaging 60 years of age. Post-mortems are recommended to detect this cause. Twelve case reports are given.

Search terms: Single vehicle accidents; Fatalities from natural causes\*; Heart diseases\*; Age factor in accidents; Sex factor in accidents; Autopsies\*; Case reports\*; Aged drivers\*; Driver physical fitness

HS-800 158 Fld. 1/2; 1/3

### MEDICO-ENGINEERING RESEARCH PROGRAM. FINAL REPORT

by John R. Finch; Ardis W. White;

James P. Smith  
(continued on back page of Table of Contents)

Baylor Univ., Houston, Tex. Coll. of Medicine

1969 456p  
Contract FH-11-6798

The purpose of this research project was to accumulate a body of knowledge on the causes of motor vehicle crashes and the consequent injuries, deaths, and property losses. A primary point of emphasis is correlation of the vehicular kinematics with the occupant injury kinematics so that effectiveness of safety features could be evaluated. Another basic purpose was to train a multi-disciplinary team for accident investigation. Scientifically-based proposals for vehicle safety improvement and suggestions for improved legislative programs are included. Data was developed from on-site investigations, study of medical reports and damaged vehicles, interviews with the injured, and psychiatric evaluation of the involved drivers where possible.

Search terms: Accident analysis; Accident causes; Accident investigation; Accident factors; Accident studies; Fatalities; Injury factors; Injury research; Accident reports; Interviews\*; Accident data; Multi-discipline teams\*; Case reports\*; Kinematics; Safety devices; Motor vehicle accidents; Motor vehicle safety devices; Driver behavior; Psychological factors; Damage; Safety laws; Human factors engineering; Data acquisition

HS-006 100 Fld. 1/2; 1/1

### THE TREATMENT OF HIGHWAY INJURY: AN INTERNATIONAL BIBLIOGRAPHY

by Eric G. Hanitzsch

Michigan Univ., Ann Arbor. Highway Safety Research Inst.

1969 160p

The effectiveness of an emergency medical system must depend upon both the timeliness of response within the system, and the adequacy of professional care offered by the system. The Highway Safety Research Institute has developed a mathe-

matical model of a recovery system relating these various factors. The present bibliography was prepared in order to provide real data to this model. Literature was sought which reported on multiple cases of trauma from either the field treatment (ambulance) or hospital point of view. Annotations, subject and author indexes are provided for approximately 650 references.

Search terms: Classifications; Bibliographies; Fatalities; Injuries; Accident data; Traffic accidents; Emergency vehicles; Helicopters; Care of injured; Emergency medical services; Medical treatment; First Aid; Ambulances; Medical services; Evacuation of injured

AVAILABILITY: Corporate author

HS-006 101 Fld. 1/2

### PHOTO-OPTICAL INSTRUMENTATION OF AUTOMOBILE COLLISIONS: AN AID TO INJURY REDUCTION RESEARCH

by Derwyn Severy; David Blaisdell; Bernard McGuire

California Univ., Los Angeles Inst. of Transportation and Traffic Engineering

7 refs

This paper provides details essential to an understanding of how photographic equipment (motion picture camera systems and electronic instrumentation) can be applied to the complex task of instrumenting a collision.

Search terms: Accident investigation; Photography; Collisions (accidents); Crash injury research; Electronic devices; Accident simulation

AVAILABILITY: In *SERVICE TO THE NATION THROUGH PHOTO-OPTICAL INSTRUMENTATION*; 13th Annual Technical Symposium Proceedings v1 p431-47 (1969)

HS-006 102 Fld. 1/2; 1/3

### SUDDEN NATURAL DEATH AMONG AUTOMOBILE DRIVERS

by Bonita J. Peterson; Charles S. Petty

Published in *Journal of Forensic Science* v7 n3 p274-85 (Jul 1962) 35 refs

## 1/2 Injuries (Cont.)

HS-006-102 (Cont.)

Grant HTS-5163 (63)

Presented at 14th annual meeting of American Academy of Forensic Sciences, Feb. 22, 1962, Chicago, Ill.

Heart disease was the most frequent cause of death among 81 drivers who died suddenly from natural causes at the wheel of a motor vehicle. In a study of such driver fatalities occurring principally in Baltimore, Maryland, during a 4-year period, the resulting accidents were minor, producing little damage to property and no serious injury to pedestrians, passengers, or other drivers. More than half of the 81 drivers were apparently able to stop the automobile before an accident occurred. The study suggests that these individuals are not as great a menace as might be expected and that a high blood alcohol level is not likely to be a contributory factor.

Search terms: Maryland\*; Fatalities from natural causes\*; Heart diseases\*; Case reports\*; Blood alcohol levels\*; Passengers; Autopsies\*; Property damage; Age factor in accidents; Accident risks; Pedestrians

HS-006 159 Fld. 1/2

### CARDIAC INJURIES INCURRED BY DRIVERS IN AUTOMOBILE ACCIDENTS

by Irving I. Lasky; Alan M. Nahum; Arnold W. Siegel

Published in *Journal of Forensic Sciences* v14 n1 p13-33 (Jan 1969) 26 refs

Presented at the Twentieth Annual Meeting of the American Academy of Forensic Sciences, Chicago, Illinois, Feb. 23, 1968.

Cardiac injuries incurred by drivers are related to violent contact with the steering wheel column. Difficulty in diagnosing this type of injury is due to the lack of symptoms, and unfamiliarity of the physician with the prevalence of such problems. Case reports show that an engineering knowledge of some of the circumstances in accidents of this nature can supply helpful clues to the examining

physician. Studies show that proper seat belts and restraints would minimize the degree of injuries.

Search terms: Cardiovascular system; Fatalities; Heart injuries; Steering wheel impacts\*; Seat belts; Electrocardiography\*; Forensic medicine\*; Case reports\*; Restraint systems; Diagnosis\*

HS-006 160 Fld. 1/2

### A MODEL FOR WHIPLASH

by John L. Martinez; Donald J. Garcia

Published in *Journal of Biomechanics* v1 n1 p23-32 (Jan 1968) 8 refs

A mathematical model was developed to represent the motion of the head and neck in experiments which seek to limit the injury-producing potential of the rear-end collision. Advantages and disadvantages of protective devices—redesigned attenuated seatbacks, harness systems—are considered. Equations of motion and impact test results are included.

Search terms: Helmets; Whiplash injuries; Mathematical models; Restraint systems; Rear end collisions; Biomechanics; Equations of motion\*; Seat backs; Impact protection; Impact tests

HS-006 161 Fld. 1/2

### TRAFFIC'S BLACKEST YEAR

by H. Gene Miller

Published in *Traffic Safety* v65 n3 p8-11, 28-9 (Mar 1965)

An all time record high of 47,800 traffic fatalities for the nation occurred in 1964. Traffic deaths were up in all regions, more in urban areas, more on county roads, most in two-vehicle collisions. National accident fatality tolls are also included in this discussion.

Search terms: Accident data; Fatalities; Accident factors; Accident types; Age factor in accidents; Urban accidents; Rural accidents; Collisions (accidents)

HS-006 211 Fld. 1/2

### MOTOR VEHICLE DEATHS OVER FOURTH OF JULY, 1960: A MORE DETAILED REPORT OF AN EARLIER STUDY

National Safety Council, Chicago, Ill.  
Dec 1960 20p

Statistics compiled for the 78-hour Fourth of July holiday period showed that there were 344 accidents involving 493 drivers and 442 fatalities. Data collected includes information on seat belt usage, purpose of trips, motor vehicle and accident types, residency of drivers, speeding, alcohol, time, age and sex of drivers and victims, and pedestrian fatalities.

Search terms: Fatalities; Sex factor in accidents; Age factor in accidents; Seat belt usage; Accident factors; Accident data; Accident types; Pedestrian accidents; Drinking drivers; Driver intoxication; High speed; Time factors; Accident location

AVAILABILITY: Corporate author

HS-006 275 Fld. 1/2

### DURATION OF SURVIVAL IN TRAFFIC ACCIDENT FATALITIES

by J. S. Robertson; J. I. Tonge

Published in *Medical Journal of Australia* v2 n14 p571-9 (5 Oct 1968) 12 refs

Survival times of car occupants, pedestrians, and motorcyclists were analyzed. Factors covered include victim's age, sex, time of day, accident location. Only 2.8% of 2,081 victims in Brisbane and 3.8% of 775 victims in Adelaide survived beyond 30 days after the accident. The recommendation was made that the period of 30 days after the accident should be specified in all countries in defining a traffic accident death for statistical purposes.

Search terms: Fatalities; Brisbane; Adelaide; Accident factors; Age factor in accidents; Sex factor in accidents; Rural accidents; Urban accidents; Time factors; Pedestrian accidents; Motorcycle drivers; Accident types; Accident analysis; Accident location; Motorcycle accidents.

HS-006 276 Fld. 1/2

### CHARACTER AND LIFE CIRCUMSTANCE IN FATAL ACCIDENT

by Norman Tabachnick; Robert E. Litman

## 1/2 Injuries (Cont.)

HS-006-276 (Cont.)

Published in *Psychoanalytic Forum* v1 n1 p65-74 (1966) 6 refs

Previous work in the psychology of accident has provided leads to the understanding of this phenomenon, but has left unresolved issues. A group of psychoanalysts with a special interest in this field suggests that fatal accident is often significantly linked to two factors: a tendency to move into a psychological state characterized by impulsive activity; and a life situation in which the transition to new responsibilities produces a situation of crisis. Study was based on the lives of some 35 accident victims, mostly drivers involved in single vehicle accidents.

Search terms: Fatalities; Psychological factors; Behavior analysis; Driver behavior; Accident proneness; Personality; Single vehicle accidents; Risk taking; Stress (psychology); Accident investigation

HS-006 322 Fld. 1/2; 1/3

**SPECIAL FATAL ACCIDENT STUDY. JAN. 1-DEC. 31, 1967**

South Carolina. Highway Patrol, Columbia

1968 12p

This study covers 741 fatal accidents on South Carolina highways, which resulted in 913 deaths during 1967. The data reflects information pertinent to the individual contributing driver, pedestrian, and motor vehicle. Specific factors covered include: weather conditions; seat belt usage; time factors; highway surface and conditions; type, model, and condition of vehicles; pedestrian involvement; driver information covering age, sex, marital status, physical condition, education, occupation, and driving record and experience; and accident information covering number of vehicles involved, type of accident, and violations.

Search terms: South Carolina; Fatalities; Sociological aspects; Socioeconomic data; Accident data; Accident factors; Age factor in accidents; Pedestrian accidents; Road conditions; Highway charac-

teristics; Marital status; Time factors; Driving experience; Sex factor in accidents; Driver physical fitness; Driver records; Accident types; Traffic violations; Environmental factors; Weather; Seat belt usage

AVAILABILITY: Corporate author

HS-006 323 Fld. 1/2

**MOTOR VEHICLE ACCIDENTS AND THEIR SEQUELAE**

by Charles F. Frey

Published in *Journal of Medical Education* v43 p1254-6 (Dec 1968)

At the University of Michigan, a sixteen hour 7-session course entitled "The Auto Accident Sequence" is a requirement for first-year medical students. The course, which treats motor vehicle accidents as a disease with an etiology and a pathogenesis, is believed to be the first such program to be included in the curriculum of a U.S. medical school as a requirement. Course content is briefly described.

Search terms: Care of injured; Accident factors; Injury factors; Medical education; Medical treatment

HS-006 382 Fld. 1/2; 3/3

**CYCLE INJURIES. A COMPARATIVE STUDY**

by Ernest A. Pellegrino, Jr.

Published in *Wisconsin Medical Journal* v67 n9 p413-7 (Sep 1968) 8 refs

Presented at the annual meeting of the Wisconsin Orthopedic Society, Racine, Oct. 20, 1967.

A study was made of 440 motorcycle accident victims and 177 bicycle accident victims in regard to age, sex, month of the year, type of injury, and area of the body injured. Suggestions to reduce cycle injuries include wearing helmets and learning the special skills needed to control motorcycles.

Search terms: Motorcycle accidents; Bicycle accidents; Age factor in accidents; Sex factor in accidents; Injury factors; Motorcycle

safety; Helmets; Driver skills; Time factors; Head injuries; Arm injuries; Leg injuries; Wisconsin

HS-006 383 Fld. 1/2; 5/7

**LOWER LACERATION DANGER FROM CHEMICALLY STRENGTHENED WINDSHIELD**

Anonymous

Published in *SAE Journal* v77 n10 p70-1 (Oct 1969)

The new Corning safety windshield seems to have achieved its purpose of reducing injury potential. Crash simulation test results attest to the design's effectiveness in preventing laceration and in limiting concussion forces to acceptable levels. The strengthened inner layer breaks into blunt-edge fragments on severe impact; it remains intact on mild impact.

Search terms: Windshields; Head injuries; Brain concussion; Injury prevention; Impact tests; Impact tolerance; Crash simulation; Laboratory tests; Laminated glass; Polyvinyl butyral

HS-006 384 Fld. 1/2

**FRACTURE OF THE RIGHT LOWER LIMB OF DRIVERS DUE TO PENETRATION OF THE FRONT WHEEL**

by Chandra P. De Fonseka

Published in *British Journal of Surgery* v56 n5 p23,322 (May 1969)

Three cases of fracture of the femur in car occupants are described. Fracture was due to floor deformation by the front wheel, the force being transmitted up the leg. This mechanism has not been described before.

Search terms: Fractures; Case reports; Deformation; Leg injuries; Wheels; Drivers

HS-006 385 Fld. 1/2; 5/14

**MESENTERY AND BOWEL INJURY FROM AUTOMOTIVE SEAT BELTS**

by Charles L. White

Published in *Annals of Surgery* v167 n4 p486-92 (Apr 1968) 32 refs

Compressing and shearing forces which develop during sudden decel-



## 1/2 Injuries (Cont.)

### HS-006-385 (Cont.)

eration of the crash victim striking the seat belt may account for the pattern of perforation and avulsion injuries. Further modification of seat belt design may be needed. Six cases are described. Five recovered after surgery. The sixth victim, whose condition was not properly diagnosed for eight days, died.

Search terms: Seat belts; Abdomen injuries; Intestines; Deceleration; Seat belt design; Injury factors; Automobile accidents; Case reports; Surgery; Diagnosis; Hazards

### HS-006 433 Fld. 1/2

#### "WHIPLASH" AND WHAT WE KNOW ABOUT IT

Anonymous

Published in *Journal of American Insurance* v45 n4 p29-32 (Sep-Oct 1969)

Aspects of the "whiplash syndrome" are discussed, including simulated crashes and safety standards on head restraints. Warnings of over-treating the injury, costs in insurance, and a definition of the term with symptoms involved and other related factors are also included.

Search terms: Whiplash injuries; Insurance claims; Rear end collisions; Head restraints; Impact tests; Headrests; Psychological factors

### HS-006 491 Fld. 1/2

#### SEAT BELT TRAUMA TO THE LUMBAR SPINE: AN UNUSUAL MANIFESTATION OF THE SEAT BELT SYNDROME

by Robert M. Steckler; Joseph A. Epstein; Bernard S. Epstein

Published in *Journal of Trauma* v9 n6 p508-13 (Jun 1969) 13 refs

An accident victim who has been wearing a seat belt must be suspected of having sustained spinal as well as abdominal injury, although spinal injuries from this cause are even more infrequent than abdominal injuries. The literature is reviewed and an additional case of spinal injury

described. The victim was involved in a forward deceleration type of accident and suffered contusions of the lower abdomen and flank and fracture dislocation of the second and third lumbar vertebrae.

Search terms: Injury factors; Seat belts; Abdomen injuries; Case reports; Reviews; Spinal injuries; Deceleration; Fractures

### HS-006 539 Fld. 5/14; 1/2

#### INTRA-ABDOMINAL INJURY FROM SAFETY BELT IN AUTO ACCIDENT. REPORT OF A CASE

by Jacob Kulowski; William B. Rost  
Published in *Archives of Surgery* v73 p970-1 (1956)

Abdominal injury was attributed to the snubbing action of the safety belt during accident victim's sudden deceleration at time of crash. Two factors possibly contributing to the injury were that the subject had just eaten a hearty meal and that he braked very hard just before impact. While the crash was severe, the injury was relatively minor.

Search terms: Abdomen injuries; Seat belts; Deceleration; Braking; Injury factors; Accident severity; Diagnosis; Surgery; Property damage; Costs

### HS-800 180 Fld. 1/2; 1/3

#### ACCIDENT PATHOLOGY, REGISTRY AND TRAINING. IN DEPTH INVESTIGATION OF MOTOR VEHICLE FATALITIES. FINAL REPORT

by Russell S. Fisher

Maryland Medical-Legal Foundation, Inc., Baltimore, Universities Associated for Research and Education in Pathology, Inc., Bethesda, Md.

3 Sep 1969 138p 18 refs  
Contract FH-11-6595

Report for the period 1 Jul 1968 to 31 Aug 1969.

A study of 80 crashes resulting in 92 motor vehicle fatalities was undertaken to investigate the following: the accident scene including estimated speed of the vehicle; the nature of the victim's injuries with emphasis on vehicle items judged to

have caused fatal injury; the presence of alcohol, drugs, and other chemical agents in the victim and crash survivors; mechanical and design defects contributing to the crash; and psychological factors in victims which may have contributed to the crash. The sample was too small to support formal conclusions, but preliminary results show: alcohol and speed continue the major identifiable causes of the fatal crash (54 cases); 11 cases were caused by poor driving judgment; roadway or mechanical defects caused 8 crashes; front-seat occupants are susceptible to head, neck, and trunk injuries when not adequately restrained; physical impairment and drug usage were not significant as crash causes; frequency of significant psychopathology was impressive and warrants further study.

Search terms: Fatalities; Accident analysis; Accident location; Speed; Injuries; Injury factors; Drinking drivers; Drugs; Chemical analysis; Carbon monoxide; Defective vehicles; Psychological factors; Driver performance; Highway characteristics; Restraint systems; Handicapped drivers; Careless driving; Secondary collisions; Accident causes; Driver intoxication; Questionnaires; Autopsies; Head injuries; Neck injuries; Age factor in accidents; Sex factor in accidents; Accident investigation training; Forensic medicine

AVAILABILITY: CFSTI

### HS-006 548 Fld. 1/2; 5/14

#### ABDOMINAL TRAUMA FROM SEAT BELTS

by Frank A. Traylor; William W. Morgan, Jr.; Joe I. Lucero; J. Cuthbert Owens

Published in *American Surgeon* v35 n5 p313-6 (May 1969) 11 refs

Eight cases of abdominal injury due to the use of seat belts are described. Most victims had a contusion in the shape of the belt. If the lap type belt is used alone, its correct application across the bony pelvic ring is important. The association of lumbar spine injuries is stressed. The use of the shoulder strap in conjunction with the lap belt is recommended.

Search terms: Abdomen injuries;

## 1/2 Injuries (Cont.)

HS-006-548 (Cont.)

Seat belts; Injury factors; Shoulder harnesses; Spinal injuries; Case reports

HS-006 549 Fld. 1/2

### THE MECHANISM OF INTESTINAL INJURY IN TRAUMA

by Roger D. Williams; Frank T. Sargent

Published in *Journal of Trauma* v3 p288-94 (1963) 15 refs

The factors responsible for rupture of the intestine with blunt trauma have been studied in experiments with dogs. It is suggested that a shearing between two opposing surfaces is the primary cause of intestinal injury due to blunt trauma. The experimental procedures are described. The paper includes a discussion of the application of these findings to injuries caused by seat belts.

Search terms: Animal experiments; Abdomen injuries; Intestines; Ruptures; Seat belts; Injury factors

HS-006 550 Fld. 1/2

### THE POST-TRAUMATIC SYNDROME IN CLOSED HEAD INJURIES ACCIDENT NEUROSIS

by P. J. Landy

Published in *Proceedings of Australian Association of Neurologists* v5 p463-6 (1968)

Medico-legal assessments of 567 head injury cases are reviewed. The incidence of post-traumatic headache in motor vehicle and industrial accident cases is highest in those having no period of post-traumatic amnesia and falls progressively the longer the period of post-traumatic amnesia. The incidence of giddiness, loss of concentration, impaired memory is also discussed. There were 12 cases of dementia. The mechanism of the headache is discussed.

Search terms: Head injuries; Forensic medicine; Legal aspects;

Medical examination; Mental illness; Injury factors; Psychological factors; Motor vehicle accidents; Industrial accidents; Neuroses

HS-006 609 Fld. 1/2

### BLUNT TRAUMA AND THE NORMAL SPLEEN: PEACETIME EXPERIENCE AT A MILITARY HOSPITAL IN EUROPE

by Warren D. Widmann

Published in *Military Medicine* v134 n1 p25-35 (Jan 1969) 16 refs

Presented at the USAREUR-7th Army Medical-Surgical Training Conference, Garmisch, Germany, May 22, 1968.

Vehicle accidents have become the major cause of significant blunt trauma. Rupture of the spleen is the most common serious abdominal injury caused by blunt trauma. A study of 119 patients with blunt abdominal trauma has found that splenic rupture was frequent, especially in children; chest X-rays are useful for adults but not for children, abdominal X-rays are sometimes helpful; victims did not die of splenic injury alone; surgery was successful in all 39 operative cases.

Search terms: Abdomen injuries; Ruptures; Case reports; X ray analysis; Fatalities; Surgery; Motor vehicle accidents; Spleen injuries; Children; Diagnosis

HS-006 610 Fld. 1/2; 5/14

### FATAL NECK INJURIES CAUSED BY USE OF DIAGONAL SAFETY BELTS

by Tom Saldeen

Published in *Journal of Trauma* v7 n6 p856-62 (1967)

Three cases are described in which the subjects slipped out of diagonal safety belts and were ejected from their cars, and in which the belts caused fatal neck injury. Two of the victims were decapitated. These cases reflect the risk involved in the combination of inadequate car door locks and a diagonal belt. The cervical spine is also subject to injury when a victim wearing a diagonal safety belt is ejected.

Search terms: Ejection; Fatalities;

Case histories; Spinal injuries; Neck injuries; Head injuries; Door locks; Safety belts; Shoulder harnesses

HS-006 714 Fld. 1/2

### SEATTLE CORONER DOCUMENTS THREE SUICIDES

by John Rawlings, Jr.

Published in *Traffic Digest and Review* v12 n3 p5-6 (Mar 1964)

During a five-year period in Seattle, 109 people have used cars to commit suicide. All but three were by carbon monoxide poisoning. The other three drove into other vehicles or off a bridge. It is suggested that people try to conceal their suicides as traffic accidents, and that more attention to the problem of suicide by auto is needed.

Search terms: Suicide; Seattle; Carbon monoxide; Accident factors

HS-006 715 Fld. 1/2

### TRAUMATIC RUPTURE OF THE PREGNANT UTERUS FROM "SEAT BELT" INJURY

by Frank E. Rubovits

Published in *American Journal of Obstetrics and Gynecology* v90 n6 p828-9 (15 Nov 1964)

This case report describes the rupture of a 6-months pregnant uterus. The victim was wearing a lap-type seat belt. She did not experience shock or hemorrhage, but the force of the blow from the seat belt was transmitted to the fetus, which broke through the uterus and died. It is recommended that there should be a design adaptation of seat belts for pregnant women.

Search terms: Ruptures; Seat belts; Abdomen injuries; Seat belt design; Case reports; Injury factors; Pregnancy

HS-006 719 Fld. 1/4; 1/2

### THE NEW JERSEY MILEPOST SYSTEM

by William T. Baker

Published in *Traffic Engineering* v37 n9 p28-30 (Jun 1967)

Highway mileposts are an effective means of locating accidents but must



## 1/2 Injuries (Cont.)

be attended by an effective accident analysis program. The installation of mileposts and the proposed accident analysis system in New Jersey are described. The mileposts will also help to pinpoint locations with a high rate of severe accidents.

Search terms: Accident location;  
Accident analysis; New Jersey;  
Hazards; Accident severity;  
Mileposts

HS-006 739 Fld. 3/2; 1/2

### NEW LAB TOOLS AID STUDY OF LOCALIZED HEAD AND FACIAL TRAUMA DURING VEHICLE IMPACT

by L. C. Lundstrom

Published in *SAE Journal* v77 n11  
p22-6 (Nov 1969)

A program to study localized head and facial trauma resulting from vehicle accidents has led to the development of several laboratory testing tools for helping engineers design vehicle interiors to higher levels of safety. Three of these tools are described: (1) MetNet--a new type of pressure recorder made of metal foam; (2) a free-fall device for local head and facial bone impact study; and (3) Tramasaf--a human-simulating headform.

Search terms: Biomechanics;  
Interior design; Tramasaf; Human  
body simulation; Facial injuries;  
Impact protection; Laboratory  
tests; Crash simulation; Safety  
design; Head injuries; Foam metals

### 1/3 Investigation and Records

HS-004 304 1/3; 2/4

COLLAPSE OF U.S. 35 HIGHWAY BRIDGE, POINT PLEASANT, WEST VIRGINIA, DECEMBER 15, 1967. HIGHWAY ACCIDENT REPORT

National Transportation Safety Board, Washington, D.C.

4 Oct 1968 86 p.  
Report no. SS-H-2

Describes bridge disaster in which 46 were killed. Presents 25 conclusions, mostly describing sequence of the disaster. Cause of collapse is not yet established. Bridge had not been completely inspected for 16 years. Search terms: Bridges; Collapse; Accident reports; Accident analysis; Safety standards; Inspection; Disasters

AVAILABILITY: Corporate author  
Recommends better standards for bridge safety. A Final report will be issued by the National Transportation Safety Board giving probable cause of the collapse, conclusions, and further recommendations.

HS-004 310 Fld. 1/3

AN ELECTRONIC GOOD SAMARITAN

by Dick Smith

Published in *Highway User* p21 (Sep 1968)

Installation of telephone call boxes on Los Angeles freeways has prevented accidents to people who would otherwise have to walk along road to get help after their cars broke down. Phones connect with Highway Patrol or Police Department communications centers which can send patrol cars, tow trucks, or ambulances. All calls are recorded.

Search terms: Accident prevention; Telephones; Traffic congestion; Police traffic services; Communication systems; Police cars; Ambulances; Pedestrian safety

HS-004 311 Fld. 1/3

NORTH CAROLINA TRAFFIC ACCIDENT SUMMARY

North Carolina. Dept. of Motor Vehicles, Raleigh Driver Education and Accident Records Div.

Sep 1968 13p

Statistics are given for fatal accidents by time of day and day of week; for all accidents by type, county. Rural and urban accidents are analyzed separately.

Search terms: Urban accidents; Rural accidents; Accident types; Accident records; Accident data; Accident factors; Time factors; Fatalities

AVAILABILITY: Corporate author

HS-004 313 1/3; 3/8; 5/6

HUNDREDS OF MOTORISTS ARE KILLED BY CARBON MONOXIDE

Anonymous

Published in *Public Health* (Johannesburg) p30, 32 (Sep 1963)

Many people die in the United States and Canada from accidents attributed to driver fatigue, drowsiness, or inattention. Statistics are not kept on carbon monoxide deaths nor are many patients tested for CO in blood as they are for alcohol. Explains ways in which CO may leak into car and be breathed by driver, causing death or brain damage, and first aid measures for CO victims.

Search terms : Carbon monoxide; First aid; Poisoning; Driver fatigue; Accident causes; Blood analysis; Brain injuries; Fatalities; Defective vehicles; Exhaust emissions

HS-800 020 Fld. 1/3; 4/5; 5/4

BIBLIOGRAPHY OF RESEARCH IN CRASHWORTHINESS OF VEHICLE STRUCTURE. VOL. 2

by E. Meisler, I. Earwood

Wyle Lab., Huntsville, Ala.

Mar 1968 81 p.

Contract FH-11-6669

Report no. WR-68-3-Vol-2; PB-180 467

Bibliography is divided by form and categories: hard cover books; bibliographies, films, publication lists, articles, pamphlets, or other general publications; subjects covered are biodynamics, crash statistics, and vehicle structures.

Search terms: Crashworthiness; Biodynamics; Structural analysis; Crash research; Accident data; Motor vehicle design

AVAILABILITY: CFSTI

HS-800 021 1/3; 5/4

BIODYNAMICS AND THE CRASHWORTHINESS OF VEHICLE STRUCTURES. VOL. 3

by A. S. Hyde

Wyle Lab., Huntsville, Ala.

Mar 1968 74 p.

Contract FH-11-6669

Report No. WR-68-3-Vol-3; PB-180 468

Reviews state of the art of biodynamics research associated with injury and fatality-producing motor vehicle accidents, identified technical gaps in past and present biodynamics, research, and discusses and recommends research programs. Covers the occupant environmental tolerance envelope, biodynamic response of man, man-vehicle coupling and restraints, classification and evaluation of crash injuries, measurements of occupant's deceleration, and ten-year plan for research.

Search terms: Biodynamics; Crashworthiness; Motor vehicle design; Accident research; Fatalities; Occupant-vehicle interface; Injury research; Restraint systems; Environmental factors; Deceleration

AVAILABILITY: CFSTI

HS-800 022 Fld. 1/3; 5/4; 5/20

IMPACT RESPONSES AND CLASSIFICATIONS OF MOTOR VEHICLE STRUCTURAL SYSTEMS-A SURVEY. VOL. 4

### 1/3 Investigation and Records (Cont.)

HS-800-022 (Cont.)

by G. C. Kao; V. M. Conticelli

Wyle Lab., Huntsville, Ala.

Mar 1968 171 p.

Contract FH-11-6669

Report no. WR-68-3-Vol-4; PB-180 469

Study of automobile structural response data obtained from collision experiments reported in the literature, including statistical approach to a response prediction model. Summary of review of the open literature on design and analysis of motor vehicles and their structural components, with classification of 1966 U.S. passenger vehicles. Also includes classification of 1966 U.S. trucks and buses.

Search terms: Impacts; Structural analysis; Statistical analysis; Motor vehicle design; Accident research; Collisions (accidents); Buses (vehicles); Trucks; Passenger vehicles

AVAILABILITY: CFSTI

HS-004 322 Fld. 1/3

#### TRAFFIC ACCIDENT DATA COLLECTION SYSTEMS

by Charles S. Michalski

National Safety Council, Chicago, Ill.  
Traffic Accident Data Project.

1 Sep 1967 23p

Presented at Institute of Traffic Engineers 37th annual meeting, St. Louis, Mo.

National Safety Council set up Traffic Accident Data Project in 1965 because of unsatisfactory state of data gathering. New reporting concepts are outlined and sample forms given. Good accident reporting would measure magnitude of the problem, define its areas, suggest lines of preventive action, measure effectiveness of preventive efforts, and define areas needing research. Historical background at accident reporting included.

Search terms: Accident reports; Accident records; Accident prevention; Accident research; Safety programs

AVAILABILITY: Corporate author

HS-004 323 Fld 1/3

#### VEHICLE DAMAGE SCALE FOR TRAFFIC ACCIDENT INVESTIGATORS

Anonymous

National Safety Council, Chicago, Ill.  
Traffic Accident Data Project

1968 18p

Report No. TAD-TBULL-1

Most common types of damage can be rated in terms of a 7-point scale. Scale consists of several pages of photographs of damaged cars, each with a diagram of car and arrows to show direction of impact.

Search terms: Damage; Accident investigation; Motor vehicle accidents; Impact severity

AVAILABILITY: Corporate author

HS-004 331 Fld. 1/3

#### “THERE'S SOMETHING DIFFERENT ABOUT CHICAGO!”...A SUCCESS STORY

Anonymous

Published in *Chicago Traffic Safety Review* special ed. (1968)

Chicago is the only one of the nation's five largest cities which has been able to reduce traffic deaths over the past 15 years. This is attributed to a traffic safety program operating on a solid base of public understanding and support. Provides chronology of progress since 1947. Deaths are down 34% since 1952.

Search terms: Community support; Traffic safety programs; Fatalities; Accident prevention

HS-004 349 Fld. 1/3; 2/3

#### THE MOTORCYCLE IN TRAFFIC

#### ACCIDENTS, ILLINOIS-1966

Illinois, Dept. of Public Works and Buildings, Springfield, Bureau of Traffic

May 1967 28p

This report is an analytical study of the frequency and severity of traffic accidents involving motorcycles in Illinois during 1966. The number of deaths accounted for 4.0% of total 1966 accidents as compared to 3.1% in 1965. Estimates indicate that the mileage death rate per 10,000,000 vehicle miles of travel based on rider deaths only may range from 4 to 9 times greater than a similar death rate for occupants of other motor vehicles.

Search terms: Statistics; Statistical analysis; Chi Square test; Traffic accident analysis; Fatalities; Injuries; Motorcycle accidents; Wet road conditions; Accident location; Age factors in driving; Light (visible radiation); Illinois

AVAILABILITY: Corporate author

HS-004 350 Fld. 1/3; 5/3

#### MOTORCYCLES AND THEIR OPERATION

American Automobile Association, Washington, D. C.

Mar 1968 20p

Report no. 3608

The phenomenal increase in motorcycle (including scooters, motorbikes and bicycles with motor attached), ownership the resulting problems and suggested solutions are discussed. Subject included are accident records, training programs (Including Canadian programs), state licensing requirements and legislation, lists of motorcycle films and magazines.

Search terms: Motorcycles; Registration; Maintenance; Motorcycle accidents; Driver education; Licensing; Statistics; Legislation; Bibliographies

AVAILABILITY: Corporate author

### 1/3 Investigation and Records (Cont.)

HS-004 352 Fld. 1/3

#### MOTOR VEHICLE TRAFFIC ACCIDENTS OCTOBER-DECEMBER 1967

Canada, Dominion Bureau of Statistics, Ottawa, Ont.

Published in *Motor Vehicle Traffic Accidents* v16 n4 p1-33 (Aug 1968)

Report-Cat-53-001

Presents statistical data for motor vehicle traffic accidents in Canada and the provinces for the 4th quarter 1967. Categories include: type of accident, road location (urban or rural), road surface, road condition, age group, sex, type of vehicle, condition of vehicle.

Search terms: Canada; Statistics; Fatalities; Age factor in accidents; Sex factor in accidents; Urban accidents; Rural accidents; Road conditions; Accident location; Traffic accidents; Time factor; Driving conditions

HS-004 353 Fld. 1/3

#### SUMMER ACCIDENTS CLAIM 27,000 LIVES

Published in *Statistical Bulletin* v47 p1-3 (Jun 1966)

Statistics for summer 1962-64 accidents in the United States are tabulated for the following accident types: motor vehicle (& pedestrian), falls, drowning, water transport, machinery, fires and burns, firearms, poisoning by gases and vapors, poisoning by solids and liquids. Comparisons are made for other months.

Search terms: Accidents; Statistics; Fatalities; United States; Summer; Motor vehicle accidents; Pedestrian accidents

HS-004 367 Fld. 1/3

#### TRAFFIC INJURY RESEARCH-A NEW APPROACH

by J. G. Kerr

Published in *Medical Services Journal of Canada* v21 n6 p415-18 (Jun 1965)

The Traffic Injury Research Foundation of Canada (TIRF) provides continuing co-ordinated planning for alleviating the traffic accident problem. Its first and most important objective is to promote, co-ordinate, guide, direct and stimulate research into all medical aspects of traffic accidents. Two research projects were initiated in the Fall of 1964: (1) Colour Blindness and (2) Traffic Accident Injury Study.

Search terms: Injury research; Accident research; Medical factors; Editorials; Canada; Safety programs

HS-004 378 Fld. 1/3

#### A BRIEF SURVEY OF ROAD TRAFFIC ACCIDENTS CARRIED OUT IN THE ORTHOPAEDIC WARDS OF HARARE HOSPITAL by John Gordon

Published in *Central African Journal of Medicine* v11 p267-70 (Sep 1965)

A comparison of accident deaths and injuries in Southern Rhodesia and the United States. Victims in Southern Rhodesia are classified as pedestrians, bicyclists, and auto occupants. Types of injuries are discussed. The accident rate in Southern Rhodesia is too high, and suggestions are made to reduce it.

Search terms: Accident data, Accident rates, Automobile accidents, Bicycle accidents, Fatalities, Hospitals, Injuries, Pedestrian accidents, Southern Rhodesia, United States

HS-004 379 Fld. 1/3

#### EPIDEMIOLOGY OF THE MONTH (MOTOR "ACCIDENTS") by G. I. Watson

Published in *Medical World* v100 p131-4 (Feb 1964)

Criticizes the tacit assumption that accidents are inevitable and suggests they should be called collisions instead. Research on their causes should be done. People should be paid to report accidents. Physicians should press for measures which will help control the accident epidemic.

Search terms: Accident causes, Accident reports, Accident research, Collisions (accidents), High speed, Physicians

HS-004 380 Fld. 1/3,4/2

#### PHYSICIANS' RESPONSIBILITY IN PREVENTION OF BODILY INJURIES BY THE AUTOMOBILE by Seymour Charles, John States

Published in *Journal of the American Medical Association* v197 n1 p107-12 (4 Jul 1966)

Safety campaigns have failed to prevent auto accidents, which have become an epidemic. The medical profession should provide initiative for expanded public education, accident investigation, and research. Federal and state governments should regulate the automobile industry.

Search terms: Physicians, Injury prevention, Accident prevention, Automobile accidents, Accident research, Seat belts, Ejection, Passenger packaging, Standards, Safety standards, Community support, Safety campaigns, Automotive industry, State government, Federal control

HS-004 398 Fld. 1/3

#### ACCIDENTS AT THE HIGH SCHOOL AND COLLEGE AGES Anonymous

Published in *Statistical Bulletin* v47 p6-8 (Nov 1966)

### 1/3 Investigation and Records (Cont.)

4-398 (Cont.)

r vehicle street and way accidents account only a seventh of the fatally injured among essents and young ts; however, such acci- s cause 70% of the lities. The death rates motor vehicle accidents inue to rise while sub- tial reductions are noted other accident types wnings, firearm accidents, s and explosions).

arch terms: Adolescent ivers, Young adult ivers, Accident rates, talities, Males, Females, atistical analysis, Motor hicle accidents

04 399 Fld. 1/3, 1/2

MOBILE ACCIDENTS  
ames K. Stack

ished in Journal of  
ma v5 p831-4 (Nov 1965)

ents on the problem of r accidents which do have to be reported any states, and ways hich they can be avoided. usses results of tests ffects of alcohol on ing ability, with or out food. Drinking out eating raises d alcohol faster and irs driving ability er. Describes a North lina study on the early gement of trauma in itals, analyzing the rs most commonly made.

rch terms: Accident vention, Food, Alco- ic beverages, Driver sical fitness, Drinking vers, Blood alcohol els, Hospitals, Emer- cy medical services, lical emergencies, th Carolina, Motor icle accidents, In- ies, Care of injured

HS-004 400 Fld. 1/3

DAYLIGHT "LIGHTS-ON" PLAN  
BY PORT OF NEW YORK AUTHORITY  
by Edmund Cantilli

Published in Traffic Engineer-  
ing v36 n3 p17 (Dec 1965)

Study to determine whether use of vehicular running lights in daylight hours would be effective as driving safety measure. 38 cars belonging to Port of New York Authority were modified so that parking lights turned on whenever ignition was turned on. These cars had 10.22 acci- dents per million miles compared to 19.20 in re- mainder of vehicle fleet.

Search terms: Headlights, Accident rates, Ignition systems, Accident pre- vention, Highway safety, Port of New York Autho- rity, Parking lights

HS-004 401 Fld. 1/3, 3/0

REPORT OF THE COMMITTEE ON  
THE MEDICAL ASPECTS OF  
TRAFFIC ACCIDENTS  
by Wallace Troup  
Canadian Medical Association,  
Ottawa (Canada). Committee  
on the Medical Aspects of  
Traffic Accidents

Published in Canadian Medical  
Association Journal v91 p511-  
13 (5 Sep 1964)

Discusses many phases of accident problem and gives recommendations of committee on driver fitness, ambulance services, seat belts, head rests, driver training in high schools, drinking dri- vers, and research on acci- dents and highway safety.

Search terms: Accident data, Driver physical fitness, Ambulances, Dri- ver education, High school drivers, Seat belts, Head- rests, Safety research, Drinking drivers, Alcoholism, Highway safety

HS-810 009 Fld. 1/3

STATISTICAL VIEWS OF

TRANSPORTATION SAFETY  
by Robert Brenner  
National Highway Safety  
Bureau, Washington, D. C.

30 Dec 1967 17p

Presented at the Annual  
Meeting of the American  
Assoc. for the Advance-  
ment of Science, New  
York City

Thesis is that present nation- wide crash information systems fall short of yielding reli- able data for safety planning, because investigations are oriented to litigation. Three-phase categorization suggested: prevention; reducing injury severity; better post-crash care.

Search terms: Accident data, Accident preven- tion, Accident responsi- bility, Accident severity, Care of injured, Emergency medical services, Injury severity, Post-crash phase, Safety research

AVAILABILITY: NHSB

HS-004 431 Fld. 1/0, 1/3, 5/4

A STUDY OF ROLLOVER IN RURAL  
UNITED STATES AUTOMOBILE  
ACCIDENTS  
by John W. Garrett  
Cornell Aeronautical Lab.,  
Inc., Buffalo, N.Y.  
Automotive Crash Injury Re-  
search

Report no. SAE-680772

Study to determine whether gross passenger car charac- teristics are associated with frequency of rollover. Characteristics examined are vehicle weight, track width, and vehicle height. Data from New Mexico and Utah were analyzed, and indicate a strong corre- lation between rollover frequency and vehicle dimensions. Rollover in- creases as car size shifts from heavy, wide track, low vehicles to light, narrow track, high cars. Car weight and tread width appear to have greatest influence on vehicle over- turn. A rollover index suitable for design pur-

### 1/3 Investigation and Records (Cont.)

HS 004-431 (Cont.)

poses could be developed.

Search terms: Rollover accidents, Motor vehicle characteristics, Rural accidents, Tread design, Vehicle weight, Automobile design, Height

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p47-71 (HS-004 429)

HS-004 432 Fld. 1/0,1/3

THE PATHOLOGY AND PATHOGENESIS OF INJURIES CAUSED BY LATERAL IMPACT ACCIDENTS by John D. States, David J. States

Report no. SAE-680773

Study of 48 lateral impacts correlating vehicle damage and occupant injury. Side-swipes produced serious injury only when occupant's elbow was protruding through window or occupant space of vehicle was seriously compromised. Intersection and drifting impacts, particularly from opposite direction, caused most serious injuries. Door is most common injury-producing structure of vehicle. Recommends deep wrap-around seats, stronger doors, door frames, and chassis structures to reduce occupant space penetration and to absorb impact energy.

Search terms: Side impact collisions, Arm injuries, Seat design, Doors, Automobile design, Injuries, Damage, Impact tolerance

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p72-93 (HS-004 429)

HS-004 438 Fld. 1/0,5/4,1/3

INJURY AND COLLISION SEVERITY by G. Murray Mackay Birmingham Univ., Warwick (England). Dept. of Transportation and Environmental Planning

Report no. SAE-680779

A method is given for correlating vehicle damage with injury severity, by comparison with damage in experimental impacts. Method is applied to vehicles damaged in urban and rural accidents in Britain. Injury severity varies with head on, corner, side, or rear end collisions, and illustrates value of lap diagonal seat belts. The effect of roof collapse on injury severity in rollover accidents is discussed. With better experimental data, different makes and models of cars could be assessed in terms of injury prevention.

Search terms: Accident severity, Collisions (accidents), Head on collisions, Rear end collisions, Side impact collisions, Seat belts, Rollover accidents, Crushing, Impact protection, Injury protection, Rural accidents, Urban accidents

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p207-19 (HS-004 429)

HS-004 440 Fld. 1/0,1/3,1/2

A DETAILED INJURY SCALE FOR ACCIDENT INVESTIGATION by D. J. Van Kirk, W. A. Lange Wayne State Univ., Detroit, Mich.

Report no. SAE-680781

A program at Wayne State University is described. Accidents are analyzed in detail and an injury scale with six categories devised: minor, moderate, moderate-severe, severe, critical, and fatal. Occupants'

injuries can be classified, and index developed for each body area in terms of force to produce injury, accident severity predicted, and human tolerance data developed which will be useful in auto design.

Search terms: Injury severity, Injury research, Accident investigation, Collisions (accidents), Impact tolerance, Impact studies, Automotive design, Accident severity

AVAILABILITY: In Society of Automotive Engineers, Inc., New York, Proceedings of Twelfth Stapp Car Crash Conference, October 22-23, 1968, p240-59 (HS-004 429)

HS-004 453 Fld. 1/2

A "FIRST LOOK" AT INJURY IN '68 ACCIDENT CARS Anonymous

Published in Transportation Research Review 3rd/4th quarter p3-4 (1968)

Preliminary study of injury causes in accidents involving 219 cars which meet safety standards compared to 3,448 earlier models. In earlier models, 57.2% of drivers were injured by steering assembly, contrasted to 44.5% in cars equipped with energy-absorbing steering column. Usage of seat belts remained poor. While the newer cars are safer, further design improvements are needed.

Search terms: Injury factors, Safety standards, Secondary collisions, Steering columns, Seat belt usage, Energy absorption, Safety design, Motor vehicle design, Accident factors

HS-004 454 Fld. 1/2

MOTOR VEHICLE DEATHS IN LOUISIANA by Dudley Andry

Published in Journal of Louisiana State Medical Society v119 n9 p335-8 (Sep 1967)

### 1/3 Investigation and Records (Cont.)

HS-004-454 (Cont.)

Statistics are presented indicating that Louisiana has the highest mileage death rate in nation. Standards required by National Traffic and Motor Vehicle Safety Act of 1966 are discussed. The medical profession is urged to play a role in traffic safety programs, especially in setting standards for emergency medical care.

Search terms: Accident rates, Fatalities, Louisiana, Insurance claims, Community support, Safety programs, Highway safety, National Traffic and Motor Vehicle Safety Act of 1966, Emergency medical services

HS-004 457 Fld. 1/3

DEATH TOLL DOWN ON RURAL ROADS. MERE FIGURES ARE MISLEADING  
Anonymous

Published in Robot n39  
p3-4 (Aug/Sep 1968)

Since the introduction of a 70 mph speed limit on rural roads in South Africa, the death toll has dropped although the number on non-fatal accidents has increased.

Search terms: Rural accidents, Fatalities, Urban accidents, Speed limits, High speed, Accident rates, Republic of South Africa

HS-004 471 Fld. 1/3

ACCIDENT FACTS 1967. STATISTICS RELATING TO MOTOR VEHICLE TRAFFIC ACCIDENTS  
Ontario. Dept. of Transport, Toronto (Canada)

1967 33p

This annual report provides statistical information on traffic accidents in Ontario. Number of accidents increased

3.7% over the 1966 total of 139,781. Fatal accidents showed an increase of 3.9% over 1966; the number of fatalities increased by 7.7%. 'Collisions with other cars' and 'Collision with pedestrians' with fatalities. 1958-67 trend data is included.

Search terms: Motor vehicle accidents, Ontario, Statistics, Accident data, Fatalities, Injuries, Property damage, Pedestrians, Accident severity, Age factor in accidents, Motorcycle accidents, Time factor, Drivers, Urban accidents, Rural accidents

AVAILABILITY: From corporate author

HS-800 013 Fld. 1/3

PILOT MEDICAL ENGINEERING ACCIDENT ANALYSIS STUDY. [PHASE I] FINAL REPORT  
Rochester Univ., N. Y. Research Accident Investigation Team  
1968 100p  
Contract FH-11-6769  
Report no. PB-182 263

Injury accidents of widely varying severity were studies, involving late model domestic cars. Ten case studies were made. Particular attention was given to the performance of the steering columns, dashboards, and windshields which have been modified to meet federal safety standards. Alcohol was a factor in accident causation nearly half the time. The program is meant to create an interdisciplinary research team of university personnel indoctrinated in medico-engineering.

Search terms: Accident causes, Accident studies, Medical factors, Injury research, Engineering, Windshields, Steering columns, Instrument panels, Drinking drivers, Alcoholic beverages, Safety standards, Injury severity

AVAILABILITY: From CFSTI as PB-182 263

HS-800 074 Fld. 1/3

A STUDY OF SEVERE VEHICULAR ACCIDENTS. PHASE 1: MEDICO-ENGINEERING TRAINING PROGRAM  
by Fleming L. Jolley, Paul H. Wright  
Georgia Inst. of Tech., Atlanta. School of Civil Engineering

Jun 1968 123p  
Contract FH-11-6797  
Report no. PB-182 262  
Final rept. on Proj. B-605

Results are given of a comprehensive study of ten severe accidents in Atlanta, including an epidemiological study of factors leading to the initiation of accidents and a study of the secondary collisions to establish kinematics of the occupants and to identify the causes of injuries and deaths. The sample size was too small to permit generalizations. The program is meant to create an interdisciplinary research team of university personnel indoctrinated in medico-engineering.

Search terms: Accident severity, Accident causes, Secondary collisions, Accident studies, Medical factors, Fatalities, Injury research, Engineering, Kinematics

AVAILABILITY: From CFSTI as PB-182 262

HS-800 078 Fld. 2/0,5/0,1/3

UCLA MOTOR VEHICLE SAFETY PROJECT. FINAL REPORT  
California Univ., Los Angeles. Dept. of Engineering

Oct 1968 228p  
Contract FH-11-6690  
Report no. 68-52

Purpose of program was to collect and evaluate data on relationship between vehicle and equipment performance and traffic crashes and to develop systematic medico-engineering techniques and procedures for study of

### 1/3 Investigation and Records (Cont.)

HS-800-078 (Cont.)

traffic injuries and fatalities in relation to design features of vehicle, highway, and other relevant factors. Work included establishing a method to reconstruct auto accidents, photoelastic studies, vehicle frame collapse mechanism, vehicle structural response, experimental collision engineering, study of head injuries, cardiovascular impacts, and mechanical characterization of human tissue.

Search terms: Crash research, Accident investigation, Fatalities, Motor vehicle design, Highway design, Accident simulation, Collisions (accidents), Head injuries, Heart injuries, Human factors engineering, Photoelastic studies, Collapse, Structural analysis, Engineering

AVAILABILITY: From CFSTI

HS-004 500 Fld. 1/3,3/0

THE PREVENTION OF HIGHWAY INJURY. PROCEEDINGS OF A SYMPOSIUM HELD APRIL 19-21, 1967, IN HONOR OF THE UNIVERSITY OF MICHIGAN'S SESQUICENTENNIAL CELEBRATION by Melvin L. Selzer, Paul W. Gikas, Donald F. Huelke Michigan Univ., Ann Arbor. Highway Safety Research Inst.

1967 305p  
Report no. PB-176 624  
Sponsored by Univ. of Michigan's Medical School and Highway Safety Research Institute

This symposium gives maximum exposure to potential preventive programs in these areas: the Alcoholic Driver, Vision and Medical

Impairment, Biomechanics, the Second Collision. The papers confirm the view that accidents and injuries can be significantly reduced now if only an effort is made.

Search terms: Injury prevention, Highway safety, Alcoholism, Vision, Handicapped drivers, Accident prevention, Drinking drivers, Biomechanics, Secondary collisions, Motor vehicle safety, Conferences

AVAILABILITY: From CFSTI as PB-176 624 (Includes HS-004 501 to HS-004 530)

HS-004 501 Fld. 1/3

FOREWORD  
by William N. Hubbard

1967

The death and injury associated with the use of the automobile have become a major health problem in the United States. Two important strategies can be developed in order to understand and attack the causes of trauma associated with auto use: 1) epidemiology and 2) systems analysis.

Search terms: Epidemiology\*, Systems analysis, Injury prevention, Accident prevention, Highway safety

AVAILABILITY: In Mich. Univ. Prevention of Highway Injury, p1-2 (HS-004 500)

HS-004 502 Fld. 1/3

RESEARCH AS A BASIC FOR ACTION PROGRAMS  
by Robert L. Hess  
Michigan Univ., Ann Arbor. Highway Safety Research Inst.

1967

Contrasts the national space effort with the highway safety effort. Highway safety must be considered a national effort equal

to the demands and costs of putting a citizen in space. This cost is estimated at \$4 billion per year for almost 10 years.

Search terms: Safety research, Cost data, Highway safety

AVAILABILITY: In Mich. Univ. Prevention of Highway Injury, p3-7 (HS-004 500)

HS-004 503 Fld. 1/3

[HIGHWAY SAFETY]. INFORMAL REMARKS  
by William Haddon, Jr.  
National Highway Safety Bureau, Washington, D. C.

1967

Comments especially on the transitional state of the highway safety field, the need for Government and others to recognize and further the current transition, and factors favoring accelerated developments in vehicle safety, among other points.

Search terms: Highway safety, Standards, Legislation, National Government, State Government, Sociological aspects

AVAILABILITY: In Mich. Univ. Prevention of Highway Injury, p9-17 (HS-004 500)

HS-004 504 Fld. 1/3,3/1

DRINKING, DRIVING AND DEATH; AN OVERVIEW  
by Robert A. Moore

1967 96 refs

Reviews data and opinions about the effects of alcohol on driving skills; the correlation between drinking, driving, and accidents; personality factors correlated with accidents. The problems of prevention by education and punishment alone are discussed, followed by general suggestions for a more effective program for prevention.

Search terms: State of the art studies, Alco-



### 1/3 Investigation and Records (Cont.)

HS-004-504 (Cont.)

holism, Drinking drivers, Driving skills, Penalties, Accident prevention

AVAILABILITY: In Mich. Univ. Prevention of Highway Injury, p21-9 (HS-004 500)

HS-004 505 Fld. 1/3,1/2

DRINKING DRIVERS AND DRIVING DRINKERS--THE NEED FOR MULTIPLE APPROACHES TO ACCIDENTS INVOLVING ALCOHOL  
by Julian A. Waller

1967 28 refs

Persons involved in accidents & violations after drinking can be classified into several diagnostic groups, most--but not all--of which involve psychosocial pathology. Preventive education must consider the diversity of drinking patterns rather than blindly assuming that social drinking is the major correlate to accidents after drinking.

Search terms: Drinking drivers, Alcholism, Accident prevention, Personality, Safety programs, Accident risks, Psychological factors, Treatment

AVAILABILITY: In Mich. Univ. Prevention of Highway Injury, p30-7 (HS-004 500)

HS-004 506 Fld. 1/3,3/1

RESPONSIBILITY, BLOOD ALCOHOL LEVELS AND ALCOHOLISM  
by Reginald G. Smart, Wolfgang Schmidt  
Alcoholism and Drug Addiction Research Foundation, Toronto, Ont. (Canada)

1967 23 refs

The blood alcohol levels of alcoholics in accidents, their responsibility for

their accidents, and the characteristics of their accidents, are compared with other drivers in alcohol-related accidents. On the average, the alcoholic drivers had blood alcohol levels twice as high as the nonalcoholic drinker.

Search terms: Blood alcohol levels\*, Alcoholism, Accidents, Drinking drivers, Driver Behavior

AVAILABILITY: In Mich. Univ. Prevention of Highway Injury p32-43 (HS-004 500)

HS-004 507 Fld. 1/3,3/1

A SCREENING PROGRAM TO DETECT ALCOHOLISM IN TRAFFIC OFFENDERS  
by N. J. Ehrlich, M. L. Selzer  
1967

Four points in the development of a screening program to detect alcoholism are: 1) the need for recognition of alcoholics as a group among traffic offenders; 2) the development of a detection test; 3) the results of experimental procedures used in the test; and 4) possible corrective measures.

Search terms: Alcoholism, Questionnaires, Drinking drivers, Driver licensing, Diagnosis\*

AVAILABILITY: In Mich. Univ. Prevention of Highway Injury, p44-50 (HS-004 500)

HS-004 508 Fld. 1/3,1/2

DETERRENTS TO DRINKING AND DRIVING AND DRIVING IN ALCOHOL MISUSERS  
by Bernard H. Fox  
Public Health Service, Arlington, Va. Injury Control Program

1967 27 refs

Deterrents (rehabilitation, improved apprehension) and countermeasures (legislative,

physiological, accident avoidance, detection of alcoholics and pre-alcoholics) are discussed. Several models of distribution of blood alcohol changes brought about by hypothetical deterrents, with estimated reduction of accidents are also presented.

Search terms: Drinking drivers, Alcoholism, Accident prevention, Accident reduction, Blood alcohol levels\*, Diagnosis\*

AVAILABILITY: In Mich. Univ. Prevention of Highway Injury, p51-62 (HS-004 500)

HS-004 509 Fld. 1/3,3/0

GROUP THERAPY AMONGST PERSONS INVOLVED IN FREQUENT AUTOMOBILE ACCIDENTS

by William A. Tillmann, Lebert Harris, Margaret A. Phipps, John L. Howe

1967  
Contract DA-49-007-MD-887

Two groups of male drivers (voluntary and coerced) with high accident history are used to determine if group psychotherapy might change their driving habits. Researchers conclude that this approach could contribute to an increased understanding of accident behaviour. Some candidates benefitted, others were further threatened by the therapy.

Search terms: Driver behavior, Accident proneness, Accident prevention, Therapy, Psychological factors

AVAILABILITY: In Mich. Univ. Prevention of Highway Injury, p63-9 (HS-004 500)

HS-004 510 Fld. 1/3,3/1,3/7

THE COMBINED EFFECT OF ETHANOL AND OTHER DRUGS  
by Robert B. Forney

### 1/3 Investigation and Records (Cont.)

HS-004-802 (Cont.)

#### ACCIDENTS IN THE UNITED STATES

by John W. Garret, Arthur Stern  
Cornell Aeronautical Lab.,  
Inc., Buffalo, N. Y.  
Automotive Crash Injury  
Research

Nov 1968 123p 8 refs  
Report no. CAL-VJ-1823-R32  
Study supported by Volkswa-  
gen of America, Inc.

Data are based on rural, injury-producing accidents involving 879 Volkswagen cars and 26,673 other cars. Dangerous and fatal injuries are more frequent among the occupants of VW and other small cars than among occupants of larger cars because of ejection rather than size of car. Ejection is more likely in rollover accidents, and these accidents are more likely in small cars. The distribution of accident severity in VW's is essentially the same as for most other cars, and the frequency of fire much less. Major causes of injury in VW were windshield, interior structures, ejection, and instrument panel, in that order. More young people and more women drive smaller cars than large cars.

Search terms: Accident investigation, Rural accidents, Ejection, Fatalities, Injury factors, Rollover accidents, Compact cars, Accident severity, Injury severity, Fires, Windshields, Damage, Secondary collisions, Instrument panels, Age factor in driving, Sex factor in driving, Volkswagens\*

AVAILABILITY: From  
corporate author

HS-004 803 Fld. 1/3

PRESENT AND FUTURE TRAFFIC  
ACCIDENT RECORDS SYSTEM IN  
NEW YORK STATE'S EFFORTS TO  
COMPLY WITH FEDERAL STANDARDS  
by Basil Y. Scott

Published in Safety v55 n3  
p10-4 (Summer-Fall 1968)

Compares present system to standards in various areas, some of which need improvement. Comments are included on accident rates, classification of data, driver and vehicle identification, accident type, injury and property damage, accident cause and situation in which it took place, accident analysis, evaluation, and reporting.

Search terms: Accident records, Traffic accidents, Standards, Accident rates, Accident types, Property damage, Accident causes, Accident analysis, Accident reports, Injuries, New York\*, Identification\*

HS-004 804 Fld. 1/3,3/0

THE PUBLIC HEALTH SERVICE  
VIEWS AUTO SAFETY  
by Robert L. Price

Published in Journal of the Louisiana State Medical Society v119 n9 p355-7  
(Sep 1967)

Outlines the motor vehicle accident problem, increase in the death rate, the higher incidence among males and young age groups, and gives figures on pedestrian accidents. Programs needed to reduce the accident toll are: improved driver licensing standards, improved driver training, control of drunk drivers, reducing pedestrian injuries, increasing seat belt use and improving restraint systems, increasing use of protective devices for motorcyclists, and improving emergency medical services.

Search terms: Highway safety, Motor vehicle accidents, Fatalities, Age factor in accidents, Sex factor in accidents, Driver license standards, Driver education, Drinking drivers, Driver intoxication, Pedestrian accidents, Accident prevention, Seat belt usage\*, Restraint systems, Motorcycle safety, Safety devices, Emergency medical services, Accident data, Injury prevention

HS-004 805 Fld. 1/3

MODEL STREET AND HIGHWAY  
ACCIDENT RECORDS SYSTEM  
Maine. Highway Safety  
Committee, Augusta

17p

This accident record system is designed to minimize record keeping and produce vital information (such as location, type of accident, number of injuries, cost) so that records may be used to effectively reduce accidents.

Search terms: Accident records, Driver records, Accident reports, Maine\*, Pedestrian accidents, Data acquisition, Cost data

AVAILABILITY: From  
corporate author

HS-004 806 Fld. 1/3

ROAD ACCIDENT STATISTICS 1966  
Royal Society for the  
Prevention of Accidents,  
London (England)

1966 16p

Ten year statistical data on road accidents in Great Britain are presented. Road accidents show a reduction while casualties to motorists continue an upward trend. Estimated cost to the community for all road accidents was approximately \$641 million.

Search terms: Traffic accidents, Statistics, Great Britain\*, Automobiles, Motorcycles, Pedestrians, Fatalities, Injuries,

AVAILABILITY: From  
corporate author

HS-004 807 Fld. 1/3,5/18,5/22

THE ACCIDENT INVESTIGATION OF  
BRAKING AND STEERING EQUIP-  
MENT. A MANUAL FOR TRAFFIC  
ENFORCEMENT OFFICERS  
Bendix Corp.,  
South Bend, Ind.

1966 26p  
First ed.

### 1/3 Investigation and Records (Cont.)

HS-004-807 (Cont.)

This manual is concerned with accidents in which the possibility of faulty braking or steering equipment must be considered. Background information on braking and steering operation is provided. The collection and analysis of accident information is discussed.

Search terms: Accident investigation, Data acquisition, Accident analysis, Braking, Brakes (motion arresters) Steering Systems\* Steering (driving), Traffic law enforcement, Police, Brake failures\*, Braking techniques

HS-004 819 Fld. 2/9,1/3

THE LANE DROP STUDY (RELATING ROADWAY ELEMENTS TO ACCIDENTS)  
by Edward J. Tye  
California. Dept. of Public Works, Sacramento. Traffic Dept.

Jun 1968 40p  
Contract HPR 1(5) B-1-11  
Report no. PB-179 439

Lane drops on California highways were evaluated; accident rates were calculated. Findings reveal transitions on curves resulted in from 2 to 10 times the accident rate for tangent transitions within the same lane drop category.

Search terms: Lane drops\*, Traffic lanes, Accident location, California\*, Accident rates, Merging traffic, Lane lines\*, Chi square test

AVAILABILITY: From CFSTI

HS-004 822 Fld. 3/4,1/3

ACCIDENTS AND HUMAN PERFORMANCE  
by Gordon H. Robinson  
Wisconsin Univ., Madison. Industrial Engineering Div.

9-12 Sep 1968 6p 12 refs  
Report no. SAE-680555  
SAE National Combined Farm Construction and Industrial Machinery, Powerplant, and Transportation Meetings, Milwaukee, Wis.

Accidents and their causation in man-machine control are defined using the automobile and driver as an example. The complex tasks performed by the automobile driver are delineated and are considered crucial to the system performance.

Search terms: Man machine systems, Driving tasks, Human factors engineering, Accident factors, Steering (driving), Driver performance

AVAILABILITY: From SAE

HS-004 836 Fld. 4/8,1/3

LOGIC AND ROAD SAFETY RESEARCH  
by Anthony Peranio

Published in Traffic Quarterly  
v23 n1 p123-31 (Jan 1969)

Road safety is dependent upon a complex of factors, one of which is the human user of the roads. Looking at the problem logically leads to an attempt to improve safety by influencing human behavior. On the assumption that accidents must be due to human error, much research has been done to detect accident proneness, reckless drivers, and other risks and causes of accidents. This paper suggests that a safety barrier has been reached and that drivers, highways, and cars cannot be made much safer; that drastic changes may have to be made in the whole transportation system to cut the accident toll any further.

Search terms: Accident causes, Accident research, Highway safety, Accident proneness, Accident risks, Driver behavior, Reckless driving, Transportation planning, Safety research

HS-810 060 Fld. 1/3,3/2

HUMAN CRITERIA FOR PROTECTION

FROM VEHICLE CRASH IMPACT  
by John P. Stapp  
National Highway Safety Bureau, Washington, D. C.

13-17 Jan 1969 5p 17 refs  
Report no. SAE-690104  
Presented at International Automotive Engineering Congress, Detroit, Mich.

Criteria for impact tolerance and survival standards in military and aviation space flight can be based on experiments with healthy male volunteers representative of air and space flight crews. Similar standards criteria for automotive crashes are unavailable as these may also involve pregnant females, infants, children, and the aged and infirm, excluded for humanitarian reasons from such experiments. Indirect alternatives suggested include: extrapolation from actual impact experiments (such as those above); correlation of data from free falls or actual crashes with measured or estimated impact forces; use of cadavers, anesthetized animals, or anthropometric dummies; computer simulation analysis.

Search terms: Crash injury research, Human body simulation, Cadavers, Human factors engineering, Experimentation, Animal experiments\*, Anthropometric dummies, Automobile accidents, Computerized simulation

AVAILABILITY: From SAE

HS-004 860 Fld. 1/3

REPORT ON ROAD ACCIDENTS  
Cumbernauld Development Corp. (England)

Published in Journal of the Institution of Highway Engineers v14 n12 p17-20 (Dec 1967)

Road accidents during a five-year period are compared with other towns and with Great Britain as a whole. The new town Cumbernauld provides total pedestrian segregation combined with road layout designed specifically for the free flow of vehicles. While

### 1/3 Investigation and Records (Cont.)

HS-004-860 (Cont.)

deaths and injuries in the new town are less than average, further improvement is possible.

Search terms: Urban planning, Accident rates, Motor vehicle accidents, Pedestrian accidents, Traffic flow, Fatalities, Injuries, Great Britain\*, Accident prevention

HS-004 861 Fld. 1/3

RELATIONSHIP BETWEEN CURB USES AND TRAFFIC ACCIDENTS  
by Thomas J. Seburn

Published in Traffic Engineering v37 n8 p42-7 (May 1967)

The relationships between parking, loading, and standing at the curb and traffic accidents have been explored. Sixteen conclusions are presented.

Search terms: Accident factors, Parking, Curb parking, Accident causes, Accident analysis

HS-004 862 Fld. 1/3

FATAL ONE-CAR ACCIDENTS  
by Robert E. Litman,  
Norman Tabachnick

Published in Psychoanalytic Quarterly v36 p248-59 (1967)

Purpose of this paper is to interest psychoanalysts in the problems posed by serious accidents. Freud's explanations for accidents on purpose are set forth. The problems of accidental suicide, accident-prone personalities, and the difference between accident-prone personalities are discussed. A group of 15 men killed in one-car accidents has been compared with 15 men who shot themselves, and a group of near-fatal accident victims is being studied. Motivation, character structure, and precipitating ego state are analyzed.

Search terms: Single vehicle accidents, Driver behavior, Psychological factors, Accident proneness, Accident analysis, Suicide\*, Fatalities, Motivation studies, Personality

HS-004 863 Fld. 1/3,3/8

CARBON MONOXIDE AND HUMAN HEALTH  
by John R. Goldsmith,  
Stephen A. Landaw

Published in Science v162 n3860 p1352-9 (20 Dec 1968)  
61 refs

A possible role of carbon monoxide in motor vehicle accidents is suggested by data which show higher levels of carboxyhemoglobin (COHb) in drivers involved in accidents than in policemen and in other occupationally exposed population segments.

Search terms: Air pollution, Smoking factor in driving, Health hazards, Carbon monoxide, Carboxyhemoglobin\*, Exhaust emissions, Accident causes

HS-004 864 Fld. 1/3,5/4

MODELS AID ACCIDENT RECONSTRUCTION AND ANALYSIS  
by David I. Cook

Published in Traffic Engineering v37 n6 p34-6 (Mar 1967)

Describes model cars and an incline system for finding the speed of vehicles involved in broadside collisions. Use of the models should give an overall picture of the physical characteristics of collisions. The procedure could be further refined by utilizing data from controlled collisions of full-size vehicles. Tests with models were accurate to within 10%.

Search terms: Impact tests, Collision tests, Side impact collisions, Speed, Accident simulation, Vehicle simulation, Simulation models, Accident reconstruction

HS-004 916 Fld. 5/20,1/3

ROLL-OVER CAN BE CAUSED BY GOING TOO SLOWLY  
Anonymous

Published in Commercial Motor v128 n3307 p40-2  
(31 Jan 1969)

Research on heavy truck stability reveals that trucks are likely to roll over when going around traffic circles slowly. This is attributed to the carrying of bigger and bulkier loads which raise the center of gravity. Since truck drivers have been trained not to take curves rapidly, the rollover problem is becoming more serious.

Search terms: Articulated vehicles\*, Driver performance, Rollover accidents, Truck accidents, Vehicle stability, Loads (forces), Center of gravity\*, Traffic circles, Speed, Accident causes, Truck drivers, Truck design\*, Suspension systems (vehicles)

### 1/3 Investigations &

#### Records (Cont.)

HS-004 918 Fld. 1/2,1/3,5/14

MECHANISMS OF SERIOUS  
LOWER LIMB INJURIES TO MOTOR  
VEHICLE OCCUPANTS  
by E. Grattan, J. A. Hobbs  
Road Research Lab.,  
Crowthorne, Berks. (England)

1968 81p

Report no. RRL-LR-201

Purpose of investigation was to determine cause of injury and the directions in which force acts upon human body, both restrained and unrestrained. Injuries investigated were fractures and fracture dislocations of hip joint, fractures of the femur, patella, and upper end of the tibia and fibula. While seat belt wearers show a considerable reduction in the over-all serious injury rate, they appear to sustain the same varieties of skeletal injury to the lower limb.

Search terms: Fractures\*, Injury research, Injury severity, Leg injuries, Pelvic injuries, Seat belts, Restraint systems, Accident severity, Automobile accidents, Deformation, Case reports\*, Safety design, Energy absorption

AVAILABILITY: From corporate author

HS-004 919 Fld. 1/3,4/6

ACCIDENT AND VIOLATION RATES  
FOR GREATER SEATTLE CLERGYMEN  
by Alfred Crancer, Jr.,  
Lucille McMurray  
Washington. Dept. of Motor  
Vehicles, Olympia

Mar 1968 8p

Report no. 009

The driving records of 100 clergymen were examined to see if higher auto insurance rates for this occupational group are reasonable. The study concludes that such

rates are not justifiable on the basis of accident rates. Procedure for determining violation and accident rates, types of violations, age distribution of clergymen studied, and comparison to average drivers are given.

Search terms: Insurance, Accident rates, Traffic violations, Age factor in driving, Washington\*, Clergymen\*, Insurance rates\*

AVAILABILITY: From corporate author

HS-004 920 Fld. 1/3,3/4,5/4,  
4/7

CENTER FOR ACCIDENT PREVENTION  
Dunlap and Associates, Inc.,  
Darien, Conn.

Nov 1965 46p

Report no. PP-65-94

Accidents stem from human error, the function of the highway, and the design of the automobile. The goals of Dunlap's Center for Accident Prevention are described and its systems-oriented approach to accident prevention discussed. Accidents are viewed as human errors to be designed out of a complex man-machine system. In this connection dynamics of vehicle steering behavior and following behavior have been studied, together with risk-taking behavior and cost-effectiveness of accident research and prevention programs.

Search terms: Accident causes, Automobile design, Highway design, Accident prevention, Man machine systems, Steering dynamics, Benefit cost analysis\*, Following distance, Driver behavior, Reckless driving, Accident research

AVAILABILITY: From corporate author

HS-004 921 Fld. 1/3,1/2

AN EPIDEMIOLOGICAL STUDY  
OF ROAD TRAFFIC ACCIDENT  
CASES ADMITTED IN SAFDARJANG

HOSPITAL, NEW DELHI  
by S. P. Mehta

Published in Indian Journal of Medical Research v56 n4 p456-66 (Apr 1968) 11 refs

Road traffic accidents now constitute a public health problem. This study investigated causal factors of accidents resulting in 297 hospital admissions. Based on these findings, preventive measures in general and particularly with reference to pedestrians and pedal cycle riders have been suggested.

Search terms: India\*, Accident types, Traffic accidents, Accident data, Injuries

HS-004 922 Fld. 1/3,5/2,2/9

INTERSTATE BUS--AUTOMOBILE  
COLLISION, INTERSTATE ROUTE  
15, BAKER, CALIFORNIA, MARCH  
7, 1968. HIGHWAY ACCIDENT  
REPORT  
National Transportation Safety  
Board, Washington, D.C.

18 Dec 1968 78p

Report no. SS-H-3

Auto driver under the influence of alcohol and carbon monoxide was driving the wrong way on a freeway and ran head on into a bus, which overturned. The auto driver and 19 persons on the bus died as both vehicles were gutted by fire. The bus fire spread so rapidly that persons in the center could not escape. There was no traffic control device to warn the auto driver that he was going the wrong way.

Search terms: Accident causes, Head on collisions, Drinking drivers, Driver intoxication, Carbon monoxide, Traffic control devices, Bus accidents\*, Fires, Automobile accidents, California\*, Driver characteristics, Wrong way\*,

Interstate highway system, Accident reports, Blood alcohol levels\*, Accident causes, State laws, Federal

# 1/3 Investigation & Records (Cont.)

HS-004-922 (Cont.)

regulations\*, Accident investigation, Injuries, Fatalities, Case reports\*

AVAILABILITY: From corporate author

HS-004 923 Fld. 1/3,3/2,5/4

RESEARCH--VITAL TO THE FORGING PROCESS

by Edwin A. Kidd  
Cornell Aeronautical Lab.,  
Inc., Buffalo, N. Y.

29 Oct 1968 20p 12 refs

Lack of understanding of the mechanisms of motor vehicle injury and accident causation seriously compromises the ability to make scientific decisions on safety improvements. Examples of research to increase understanding of vehicle crashworthiness and driver behavior are given. Computer simulation is central to such research. The effects of safety improvements can be examined by simulation of occupant trajectory during impact, vehicle trajectory during accident, or driver-vehicle behavior leading to accident.

Search terms: Computerized simulation, Accident simulation, Driving simulation, Human body simulation, Driver behavior, Accident causes, Injury research, Crashworthiness\*, Motor vehicle accidents, Accident research, Safety design, Impact studies, Driver-vehicle interface, Costs\*, Impact tests

AVAILABILITY: From corporate author

HS-004 924 Fld. 1/3

SUMMARY AND ANALYSIS OF ACCIDENTS ON RAILROADS IN THE UNITED STATES, CALENDAR YEAR 1966  
Bureau of Railroad Safety,

Washington, D.C.

1968 86p  
Report no. Accident-Bull-135

Statistical tables are given for railroad accidents. Classes of accidents, causes, injuries, fatalities are set forth. Tables are included on railroad-highway grade crossing accidents.

Search terms: Accident types, Accident data, Accident analysis, Motor vehicle accidents, Railroads, Railroad grade crossings\*, Grade crossings (highways)\*, Accident causes, Injuries, Fatalities, Statistics\*

AVAILABILITY: From GPO \$1.00

HS-004 925 Fld. 1/3,1/2

TRAFFIC DEATHS IN LAKE COUNTY INDIANA: A TWO-YEAR STUDY

by W. P. Loh, A. S. Williams

Published in Medical Times  
v96 n10 p982-7 (Oct 1968)

Accident type, time, and cause are analyzed. Speeding, loss of control, and disobeying signals were found to be the three leading causes of accidents. Defective automobiles were responsible in only five accidents. Three essentials for traffic safety are described: safe driver, safe automobile, safe road.

Search terms: Traffic accidents, Fatalities, Accident causes, Indiana\*, Unsafe speed, Accident types, Traffic safety, Age factor in accidents, Sex factor in accidents, Accident data, Blood alcohol levels\*

HS-004 926 Fld. 1/3

VARIATIONS IN THE PATTERN OF ACCIDENT RATES IN DIFFERENT COUNTRIES AND THEIR CAUSES  
by R. J. Smeed

Published in Traffic Engineering and Control v10 n7 p364-71

(Nov 1968)

Summarizes contents of 16 international papers on road accidents. Notes trends in vehicle registrations, fatalities, accident rates. Considers effect on casualties of factors other than traffic (weather, economic growth, speed limits).

Search terms: Accident rates, Statistical analysis, Injuries, Fatalities, Motor vehicle registration, Weather, Economic factors, Bicycles, Age factors, Speed

HS-004 944 Fld. 3/1,3/4,1/3

ALCOHOLISM, MENTAL ILLNESS, AND STRESS IN 96 DRIVERS CAUSING FATAL ACCIDENTS  
by Melvin L. Selzer

Published in Behavioral Science v14 p1-10 (Jan 1969)  
16 refs

96 drivers, each of whom caused a fatal accident, were compared with a like number of control drivers. Information was collected regarding chronic alcoholism, emotional illness, personal and social stress, acute preaccident disturbances, social class, and prior driving behavior.

Search terms: Fatalities, Accident factors, Drinking drivers, Mental illness, Driver behavior, Socio-economic data, Alcoholism, Personality, Blood alcohol levels\*, Age factor in accidents, Time factor in accidents, Suicide\*, Depression\*, Stress (psychology)

HS-800 085 Fld. 1/3

RESEARCH TO IMPROVE THE PROCESS OF ACCIDENT INVESTIGATION. SUMMARY REPORT.

VOL. 1  
by J. M. Keryeski,  
J. W. Garrett  
Cornell Aeronautical Lab.,  
Inc., Buffalo, N. Y.

5 Jan 1968 74p 20 refs  
Contract FH-11-6651  
Report no. CAL-VJ-2515-V-1;

## 1/3 Investigations &

### Records (Cont.)

HS-800-085 (Cont.)

PB-177 907

This research project studies improved processing of motor vehicle accident investigation especially in the determination of accident causation. Present data from police and driver reports have limited potential. Data needs, new information collecting methods, techniques and equipment are described in this interim progress report.

Search terms: Accident causes, Motor vehicle accidents, Accident analysis, Highway communication, Data acquisition, Accident records, Photography, Computers, Tape recorders\*, Accident investigation, Television systems, Defective vehicles

AVAILABILITY: From CFSTI as PB-177 907

HS-800 086 Fld. 1/3

RESEARCH TO IMPROVE THE PROCESS OF ACCIDENT INVESTIGATION. FINAL REPORT. VOL. 2

by J. M. Keryeski, J. W. Garrett  
Cornell Aeronautical Lab., Inc., Buffalo, N. Y.

Oct 1968 248p 37 refs  
Contract FH-11-6651  
Report no. CAL-VJ-2515-V-2

Identifies, evaluates potential applications of current technology (still and stereo photography, pre-programmed audio recording, video tape recorders, vehicle diagnostic systems). Introduces an improved accident investigation system concept (Multi Level Concept) and photographic measurement of "alcohol intoxication impairment" using Hycam and Strobotac.

Search terms: Accident

investigation, Data acquisition, Photography, Questionnaires\*, Drinking drivers, Intoxication, Eye movement, Accident causes, Test equipment, State of the art studies, Defective vehicles, Debris removal, Highway communication, Breath analysis, Tape recorders\*, Television systems

HS-800 087 Fld. 1/3

APPLICATION OF SELECTED TECHNOLOGY TO ACCIDENT INVESTIGATION

by Robert A. Wolf, John W. Garrett  
Cornell Aeronautical Lab., Inc., Buffalo, N. Y.

Oct 1968 245p  
Contract FH-11-6651  
Report no. CAL-VJ-2515-V-3  
Vol. 3 of FINAL REPORT.  
RESEARCH TO IMPROVE THE PROCESS OF ACCIDENT INVESTIGATION.

Continues inspection of existing technology to (1) reduce "on scene" accident investigation time, (2) improve reliability of information collected (3) increase completeness of information collected. Contains step by step analysis of procedures developed for accident investigation through adaptation of new equipment or techniques.

Search terms: Accident investigation, Data acquisition, Accident analysis, Photography, Accident reports, Intoxication, Television systems, Questionnaires\*, Eye movement, Tape recorders\*, Defective vehicles, Laboratory tests, Test equipment, Radio communication

AVAILABILITY: From CFSTI

HS-800 089 Fld. 1/3

MAXIMUM SAFE SPEED FOR MOTOR VEHICLES

National Highway Safety Bureau, Washington, D. C.

31 Jan 1969 85p 57 refs  
An NHSB staff report.

The role of motor vehicle speed in crash avoidance and crash severity reduction has been studied. Physical characteristics of the vehicle-highway system are examined for their influence on safe speed. Driver interaction, speed governor technology and public acceptance, and statutory speed limits are discussed. Study confirms that high speed is involved to a major degree in the highway crash death toll. A top speed limiting device may be an effective, but not optimum, way of reducing fatal and severe injuries.

Search terms: Control equipment, Speed control, High speed, Driver-vehicle interface, Highway characteristics, Public opinion, Accident severity, Accident prevention, Fatalities, Injury severity, Automatic control, Speed limits, Accident causes, Speed regulators\*, Post-crash phase

AVAILABILITY: From CFSTI

HS-004 962 Fld. 1/2,1/3,5/14

EJECTION IN CAR ACCIDENTS

by M. M. Miller, H. J. H. Starks  
Road Research Lab.,  
Crowthorne, Berks. (England)

1968 36p 24 refs  
Report no. RRL-LR-190

Type of accident, safety belt usage, glass area, door latches, type of road, are some of the factors affecting ejection of occupants at time of crash. 50% of those ejected were killed, 1/3 were seriously injured, all the remainder were slightly injured.

Search terms: Ejection, Injuries, Fatalities, Damage, Automobile accidents, Statistical analysis, Injury severity, Safety belts, Drivers, Passengers



### 1/3 Investigations & Records (Cont.)

HS-004-962 (Cont.)

AVAILABILITY: From  
corporate author

HS-004 963 Fld. 1/2,1/3,4/7

FATAL AND INJURY ACCIDENT  
RATES ON FEDERAL-AID AND  
OTHER HIGHWAY SYSTEMS, 1967  
Bureau of Public Roads,  
Washington, D. C.

1969 40p

Statistical tables give  
fatality rate trends by  
highway system; fatality and  
fatal-accident rates by  
highway system and state;  
injury and injury-accident  
rates by highway system and  
state; fatality and injury  
data related to vehicle  
registrations, population,  
and licensed drivers; fatali-  
ties, fatal accidents, and  
travel; injuries, injury  
accidents, and travel.

Search terms: Statistics\*,  
Accident data, Interstate  
highway system, Fatalities,  
Injuries, Accident types,  
Motor vehicle registration,  
Populations, Driver licens-  
ing, Highway usage, Federal  
aid, Rural highways,  
Accident rates, Vehicle  
miles\*

AVAILABILITY: From GPO \$0.45

HS-004 969 Fld. 3/4,2/11,1/3

CREDIT RATINGS AS A PREDICTOR  
OF DRIVING BEHAVIOR AND  
IMPROVEMENT

by Alfred Crancer, Jr.,  
Lucille McMurray

Washington. Dept. of  
Motor Vehicles, Olympia

May 1968 7p  
Report no. 010

A comparison was made of the  
driving records of 36 persons  
with good credit ratings and  
23 persons with bad credit  
ratings in order to deter-  
mine the relationship between  
economic and driving behavior.

Those persons with poor credit  
ratings had a 280% higher  
accident rate and 137% higher  
violation rate than those  
with good credit ratings.  
Warning letters to poor credit  
risks were less effective  
than warnings to good credit  
risks. Drivers with good  
credit are more likely to  
improve.

Search terms: Driver  
records, Accident rates,  
Washington\*, Driver  
behavior, Traffic violations,  
Driver improvement,  
Economic factors, Credit  
ratings\*

AVAILABILITY: From  
corporate author

HS-004 971 Fld. 3/7,2/11,1/3

DRIVING RECORDS OF PERSONS  
ARRESTED FOR ILLEGAL DRUG  
USE

by Alfred Crancer, Jr.,  
Dennis L. Quiring  
Washington. Dept. of  
Motor Vehicles, Olympia

May 1968 13p  
Report no. 011

Records of 302 persons  
arrested for drug use  
were compared with 687,228  
driving records of others.  
Drug users were classified  
as narcotic users, dangerous  
drug users, and marihuana  
users. Each of these groups  
had higher accident and  
violation rates than the  
general population. They  
had more reckless, hit and  
run, and negligent driving,  
but fewer violations for  
speeding, failure to stop,  
and failure to yield. In-  
jury and property damage  
rates were comparable to  
the population. None had  
been involved in fatalities.

Search terms: Washington\*,  
Driver records, Driver  
physical fitness, Drugs,  
Accident rates, Traffic  
violations, Reckless  
driving, Careless driving,  
High speed, Injury factors,  
Property damage, Fatalities,  
Narcotics\*, Marijuana\*,  
Hit and run accidents,  
Right-of-way (traffic  
rules)\*

AVAILABILITY: From corporate  
author

HS-006 012 Fld. 1/3; 3/4

INVOLVEMENT OF THE PROBLEM  
DRIVER IN FATAL MOTOR  
VEHICLE ACCIDENTS

by Alfred Crancer

Washington. Dept. of Motor Vehicles,  
Olympia

Feb 1967 40p  
Report no. 002

Published October 1967 by Traffic  
Quarterly

This study determines the degree of  
involvement of the problem driver in  
823 fatal motor vehicle accidents  
which occurred in Washington State  
during 1966. The involved drivers  
were significantly different, regardless  
of culpability, from the typical  
Washington driver in the following  
respects: driving record, age, sex,  
type of violation on driving record.  
The violation patterns for drivers  
involved in fatalities, in one-car  
fatalities, and in pedestrian-car  
fatalities are also given.

Search terms: Fatalities; Vio-  
lations; Driver records; Accident  
studies; Accident types; Accident  
data; Washington\*; Problem drivers;  
Age factor in accidents; Sex factor  
in accidents; Pedestrian accidents;  
Traffic accidents; Adolescent  
drivers\*; Aged drivers\*; Motorcycle  
accidents; Bicycles; Single vehicle  
accidents; Railroads; Driver license  
suspension; Liability

AVAILABILITY: Corporate author  
"

HS-004 986 Fld. 5/4,1/3,3/4

CONSIDERATIONS IN DETERMINING  
VEHICLE HANDLING REQUIREMENTS

by Walter Bergman  
Ford Motor Co., Dearborn,  
Mich.

13-17 Jan 1969 17p 17 refs  
Report no. SAE-690234  
Presented at International  
Automotive Engineering  
Congress, Detroit, Mich.

Discusses the facets of  
vehicle handling and relates  
them to real life conditions.  
Includes description of  
driver-vehicle handling  
qualities in terms of



### 1/3 Investigation &

### Records (Cont.)

HS-004-986 (Cont.)

safety and performance. Analyzes the mechanics of accidents. Reviews and compares subjective evaluation, performance task testing, and response measurement methods for developing desirable vehicle handling characteristics. New test methods for measuring effects of braking and acceleration in cornering are described.

Search terms: Driver performance, Performance tests, Motor vehicle handling, Accident analysis, Braking techniques, Acceleration (physics), Cornering, Driver-vehicle interface, Motor vehicle safety, Vehicle stability

AVAILABILITY: From SAE

HS-800 091 Fld. 1/3

UCLA MOTOR VEHICLE SAFETY PROJECT. VEHICLE COLLISION REPORT - TASK 1 [804-D] California Univ., Los Angeles. Dept. of Engineering

Dec 1968 69p  
Contract FH-11-6690  
Report no. 804-D  
Cover title: COLLISION INVESTIGATION REPORT--TASK 1. CASE STUDY.

Case study of multi-vehicle collision presents occupant kinematics, slide pictures, police and autopsy reports. Injuries from the right rear quarter panel and from fire were fatal to rear passenger (a child). Fuel tank ruptured when bolt retaining the rear tracking bar penetrated the fuel tank on impact. Occupants were not using restraints.

Search terms: Children, Kinematics, Accident investigation, Fires, Fuel tanks, Fatalities, Seat belt usage\*, Collision (accidents), Case reports\*, Impact severity

AVAILABILITY: From CFSTI

HS-005 012 Fld. 1/3

AGE AND SEX IN RELATION TO ROAD TRAFFIC ACCIDENTS by J. B. Lock

Published in Australian Road Research Board Proceedings of the Third Conference, Sydney v3 pt1 p623-37 (1966)

Report no. Paper-271

Quantitative data were analyzed by computer to determine whether the driver under age 25 is responsible for, or involved in, an undue proportion of traffic accidents. Comparative mileage travelled (driving exposure) is considered. Paper concludes that the young male driver under 25 is more accident prone.

Search terms: Traffic accidents, Age factor in accidents, Sex factor in accidents, Accident studies, Statistical analysis, Computers, Accident analysis, Australia\*, Accident proneness

HS-005 013 Fld. 1/3

CALCULATING RELATIVE INVOLVEMENT RATES IN ACCIDENTS WITHOUT DETERMINING EXPOSURE by J. D. Thorpe

Published in Australian Road Research v2 n1 p25-36 (Sep 1964)

Describes a method of using differential involvement in single-vehicle and collision accidents to determine the relative likelihood of a particular driver-vehicle combination to be involved in an accident.

Search terms: Statistical analysis, Single vehicle accidents, Collisions (accidents), Driver characteristics, Accident research, Accident rates

HS-005 014 Fld. 1/3

THE HIGH TRAFFIC ACCIDENT RATE AMONG THE MIDDLE-AGED. A PROBLEM AND ITS SOLUTION.

PART II  
by Julian A. Waller

Published in Traffic Digest and Review v15 n9 p13-8 (Sep 1967)

For part I, see HS-000 586.

Certain groups of middle-aged drivers with chronic medical conditions are high risk cases, as are drinking drivers and pedestrians. Excessive risk is also associated with such environmental factors as poor roads, poor vehicle design, and rural environment. Accident reduction can be achieved by regulating drivers, changing vehicle and road design, better packaging of vehicle occupants, and better emergency medical care. It is suggested that emphasis should be placed on detecting of alcoholism and on improvement of the vehicle.

Search terms: Accident prevention, Alcoholism, Drinking drivers, Driver intoxication, Accident risks, Adult drivers, Automobile design, Highway design, Safety design, Rural accidents, Emergency medical services, Driver physical fitness, Driver restrictions, Socioeconomic data, Smoking factor in driving, Traffic accident analysis, Pedestrian-vehicle interface

HS-005 015 Fld. 1/4, 1/3/2/9

POLICE USE OF ACCIDENT AND VIOLATION RECORDS IN

QUEENSLAND FOR ACCIDENT REDUCTION AND DRIVER IMPROVEMENT PURPOSES

by R. A. Rice, J. I. Tindall

Published in Australian Road Research Board Proceedings of the Third Conference, Sydney v3 pt1 p604-22 (1966)  
5 refs

Report no. Paper-265

Includes discussions with R. D. Gossip, G. Bell, and N. S. Guerin.

To study hazardous locations so that engineering and/or enforcement measures could be taken, an Accident Analyti-

### 1/3 Investigation &

#### Records (Cont.)

HS-005-015 (Cont.)

cal Section was set up by the Queensland Police Department. The Section collects traffic accident data and traffic violation reports storing the data on punched cards. This paper details operations, data summaries, etc. generated by the system.

Search terms: Accident locations, Automatic data processing, Statistical analysis, Driver improvement, Accident prevention, Australia\*, Accident analysis, Driver records, Data reduction, Law enforcement, Violations

HS-005 023 Fld. 3/1,1/3

RESPONSIBILITY, BLOOD ALCOHOL LEVELS, AND ALCOHOLISM  
by Reginald G. Smart,  
Wolfgang Schmidt

Published in Traffic Safety Research Review VII n4  
p112-6 (Dec 1967) 23 refs  
Presented at the Prevention of Highway Injury symposium,  
April 1967 (cf. HS-004 506)

The blood alcohol levels of alcoholics in accidents, their responsibility for their accidents, and the characteristics of their accidents, are compared with other drivers in alcohol-related accidents. On the average, the alcoholic drivers had blood alcohol levels twice as high as the nonalcoholic drinker.

Search terms: Blood alcohol levels\*, Alcoholism, Drinking drivers, Driver behavior, Accidents

HS-005 053 Fld. 1/3, 2/11

ACCIDENT AND VIOLATION RATES FOR WASHINGTON DRIVERS

by Alfred Crancer, Jr.

Washington. Dept. of Motor Vehicles,  
Olympia

May 1967 7p  
Report no. 003

Data are given for the accident and violation rates of selected age and sex groupings of drivers. Reasons for the differences in rates by age and sex may be due to driving exposure and personality. Accident and violation rates for male drivers are higher than those for female drivers. Drivers over age 65 have lower violation rates. Male drivers over 65 have lower accident rates than any comparable age group, but female drivers over 65 have a high accident rate.

Search terms: Age factor in accidents, Age factor in driving, Accident rates, Traffic violations, Sex factor in driving, Sex factor in accidents, Washington\*, Accident data, Driver records

AVAILABILITY: Corporate author

HS-005 054 Fld. 1/3

SOME RECENT TRENDS IN THE ROAD ACCIDENT PATTERN IN GREAT BRITAIN

by J. M. Munden

England. Road Research Lab.,  
Crowthorne, Berks.

1968 20p  
Report no. RRL-LR-168

Classes of casualties, accidents, and accident rates are tabulated for a period from the early 1950's until 1966. Explanations of the trends are suggested where possible. Casualties per unit of distance travelled, severity of injuries, pedestrian rates for different age groups, the proportion of accidents at night, and the role of defective vehicles are discussed.

Search terms: Accident data, Accident rates, Great Britain\*, Accident types, Accident causes, Vehicle miles\*, Injury severity, Pedestrian accidents, Age factor in accidents, Night driving, Defective vehicles, Accident factors, Skidding accidents

AVAILABILITY: Corporate author

HS-005 055 Fld. 1/3, 5/20

A SURVEY INTO THE ACCIDENT RATES OF ARTICULATED AND RIGID COMMERCIAL VEHICLES

by B. N. Farr, I. D. Neilson

England. Road Research Lab.,  
Crowthorne, Berks.

1968 20p  
Report no. RRL-LR-197

Handling problems form the major contribution of design features leading to accidents. Of the few mechanical failures leading to accidents, several were brake faults. Tire failures caused almost none of the incidents. No overall safety advantage would accrue from restricting the length of articulated vehicles.

Search terms: Accident rates, Articulated vehicles\*, Heavy duty vehicles, Cargo transportation, Lighting equipment, Accident causes, Motor vehicle handling, Braking, Tires, Jack knifing\*, Commercial vehicles

AVAILABILITY: Corporate author

HS-005 056 Fld. 1/4, 1/3

ACCIDENT DEBRIS AND REPORTED ACCIDENTS AT ROUNDABOUTS

by C. R. Faulkner

England. Road Research Lab.,  
Crowthorne, Berks.

1968 18p  
Report no. RRL-LR-202

Relation between "debris" accidents and reported "injury" accidents was studied. A fair prediction of injury accidents (but not a complete record) could be made by inspecting debris (fragments of colored plastic or glass found at collision sites). These rates were about 10 times the reported injury rates.

Search terms: Accident rates, Traffic circles, Forecasting, Great Britain\*, Taillights, Brake lights, Glass, Plastics, Accident location

AVAILABILITY: Corporate author

## 1/3 Investigation &

### Records (Cont.)

HS-005 086 Fld. 5/4, 1/3

#### PERSPECTIVE PICTURE OUTPUT FOR AUTOMOBILE DYNAMICS SIMULATION

by C. M. Theiss

Cornell Aeronautical Lab., Inc., Buffalo, N.Y.

Jan 1969 104p

Contract CPR-11-3988

Report no. CAL-VJ-2251-V-2R; PB-182662

Supersedes report CAL-VJ-2251-V-2. Vol. 1 is HS-000 529, PB-175 919; Vol. 3 is HS-005 087, PB-182 663.

Describes a computer program for producing perspective picture displays of the output from a simulation of the dynamics of a single auto maneuvering under various conditions. Includes picture generating sub-routines and lists in FORTRAN programming language. Project is part of a research program to reduce single vehicle accidents on rural highways by modifying vehicle and highway elements so that the kinetic energy of the moving vehicle is converted into redirected motions and/or dissipated in a controlled fashion.

Search terms: Computer programs, Motor vehicle dynamics, Driving conditions, Motor vehicle handling, Rural accidents, Single vehicle accidents, Energy absorption, Highway design, Motor vehicle design, Kinetic energy, Rural highways, FORTRAN\*, Computerized simula-

tion, Three dimensional display\*

AVAILABILITY: CFSTI as PB-182 663

HS-005 087 Fld. 5/4, 1/3, 4/7

#### VEHICLE DYNAMICS IN SINGLE-VEHICLE ACCIDENTS: VALIDATION AND EXTENSIONS OF A COMPUTER SIMULATION. INTERIM TECHNICAL REPORT

by Raymond R. McHenry, Norman J. Deleys

Cornell Aeronautical Lab., Inc., Buffalo, N.Y.

Dec 1968 293p 28 refs

Contract CPR-11-3988

Report no. CAL-VJ-2251-V-3; PB-182 663

Vol. 1 is HS-000 529, PB-175 919, Vol. 2 is HS-005 086, PB-182 662.

Excellent correlation for a variety of violent maneuvers (mostly ride and cornering responses) was obtained by comparing computer simulated predictions with measured results from full-scale experiments. This simulation research is expected to make an important contribution toward safety.

Search terms: Digital computers, Single vehicle accidents, Vehicle simulation, Computerized simulation, Accident simulation, Mathematical models, Motor vehicle handling

AVAILABILITY: CFSTI as PB-182 663

HS-005 089 Fld. 5/6, 1/3, 3/8

#### PHOTOCHEMICAL AIR POLLUTION AND AUTOMOBILE ACCIDENTS IN LOS ANGELES: AN INVESTIGATION OF OXIDANT AND ACCIDENTS, 1963 AND 1965

by Hans K. Ury

Published in *Archives of Environmental Health* v17 p334-42 (Sep 1968)

A statistically significant relationship exists between increasing oxidant levels and increase in motor vehicle accidents. However, this association might be due to other air pollution variables present at the same time as oxidant. The statistical methods used are discussed.

Search terms: Accident rates, Statistical analysis, Motor vehicle accidents, Air pollution Los Angeles\*, Accident factors, Smbg, Oxidizers\*

HS-800 075 Fld. 1/2, 1/3

#### TEN FATAL AUTOMOBILE ACCIDENTS

Boston Univ., Mass. Law-Medicine inst.

1968 58p

Contract FH-11-6795

A multidisciplinary approach was used including pathology, orthopedics, ophthalmology, highway engineering, photography, legal and research assistance. The accident scene was investigated, the wrecked cars examined, the highway site studied, and an integrated picture of the accident in all its phases was developed. Conclusions and deductions on the causes of the accidents, generally multiple factors, and of the causes of death are presented.

Search terms: Autopsies\*, Accident causes, Accident analysis, Fatalities, Photography, Legal factors, Highway engineering, Accident reconstruction\*, Pathology\*, Defective vehicles, Injuries, Accident investigation, Case reports\*, Safety design

AVAILABILITY: CFSTI as PB-183 802

HS-800 076 Fld. 1/3

#### MEDICAL ENGINEERING ANALYSIS OF TEN SEVERE VEHICULAR ACCIDENTS OCCURRING IN THE GREATER NEW ORLEANS AREA

by Jack K. Wickstrom, John L. Martinez

Tulane Univ., New Orleans, La.

Sep 1968 114p

Contract FH-11-6794

Ten serious motor vehicle accidents involving 16 vehicles and resulting in 10 deaths were studied by an interdisciplinary team composed of physicians and engineers. Damage to vehicles and injury to occupants are reconstructed from measurements and photographs and from necropsy data.

### 1/3 Investigation &

#### Records (Cont.)

##### HS-800-076 (Cont.)

The principal and contributory causes of the accident and the injuries are identified when possible.

Search terms: Fatalities, Motor vehicle accidents, Damage, Injury research, Accident causes, Accident reconstruction\*

AVAILABILITY: CFSTI as PB-183 864

##### HS-005 097 Fld. 1/2; 1/3

#### ANALYSIS OF DEATHS ON NEW SOUTH WALES ROADS 1935-1967

by R. J. Vaughan

Published in *Australian Road Research* v3 n6 p33-7 (Jun 1968)

Analyzes the number of deaths on N.S.W. roads for 1935-67. For data covering 1947-66, a linear regression was fitted from which test statistics were calculated to determine if a drop in deaths from one year to the next was significant. The purpose of this analysis is to judge the significance of increases or decreases in annual death rates.

Search terms: Regression analysis\*, Fatalities, Australia\*, Motor vehicle accidents, Statistical analysis, Accident analysis

##### HS-005 098 Fld. 1/3; 1/2

#### CHICAGO'S 1968 TRAFFIC DEATH RATE LOWEST OF BIG CITIES

Anonymous

Published in *Chicago Traffic Safety Review* (Jan-Feb 1969) 4p

Among the aspects of the safety problem discussed are: traffic fatalities, drunk driving, traffic courts, traffic law enforcement, traffic congestion, the Highway Safety Act of 1966, police training, driver education, and pedestrian accidents.

Search terms: Accident rates, Fatalities, Drinking drivers, Driver intoxication, Traffic courts, Traffic law enforcement, Traffic congestion, Highway Safety Act of

1966\*, Police, Driver education, Pedestrian accidents, Chicago\*

##### HS-005 099 Fld. 1/3

#### TRAFFIC COLLISIONS IN NORTH CAROLINA. 1968 ANNUAL STATISTICAL SUMMARY

North Carolina. Dept. of Motor Vehicles, Raleigh. Driver Education and Accident Records Div.

[1969] 28p

Gives data on fatalities, accident causes, time of fatal accidents, age factors, accident types, pedestrian accidents, statistics for each county, analysis of rural accidents versus urban accidents.

Search terms: Accident data, Rural accidents, Urban accidents, Fatalities, Accident causes, Age factor in accidents, Accident types, Time factors\*, Pedestrian accidents, North Carolina\*

AVAILABILITY: Corporate author

##### HS-005 138 Fld. 1/3

#### SEMINAR ON THE MEDICAL ASPECTS OF TRAFFIC SAFETY

by John E. Miller

Published in *Maryland State Medical Journal* v16 p45-7 (Jun 1967)

General discussion of the auto accident problem and its increasing seriousness. Of the three factors involved (driver, vehicle, and road), the driver is regarded as the principal cause by most authorities. Young male drivers and drinking drivers are particularly dangerous. Better treatment of the injured is helpful but does not solve the problem.

Search terms: Accident factors; Accident causes; Automobile accidents; Driver behavior; Drinking drivers; Care of injured; Emergency medical services; Age factor in accidents; Sex factor in accidents; Young adult drivers\*; Highway characteristics

##### HS-005 139 Fld. 1/3

#### SOME GENERAL ACCIDENT FIGURES

by J. J. Leeming

Published in *Traffic Engineering & Control* v10 n9 p482-4 (Jan 1969)

Points out the fallacy in comparing accident figures by country as a basis for legislation. Discusses international comparisons, traffic death rates, the Connecticut enforcement campaign against speeders.

Search terms: Fatalities; Traffic law enforcement; Accident data; High speed; Connecticut\*; Safety campaigns; Europe\*; Canada\*; United States\*

##### HS-005 140 Fld. 1/3

#### BUMPER-TO-BUMPER COLLISIONS ON THE M4 MOTORWAY (CHISWICK TO MAIDENHEAD) IN 1966 AND 1967

by P. L. Harms

England, Road Research Lab., Crowthorne, Berks.

1969 28p

Report no. RRL-LR-235

Police accident reports on collisions have been analyzed, considering traffic flow, collision rates, accident location, weekly and monthly variations. Many of the accidents took place in darkness during the evening peak period or on elevated sections without hard shoulders. Many of the accidents might have been avoided by maintaining a reasonable following distance, and this type of accident shows an increase in the two-year period studied. The problem of close following is highlighted from a driver behavior viewpoint.

Search terms: Accident rates; Driver behavior; Following distance; Great Britain\*; Rear end collisions; Peak hour traffic; Statistical analysis; Accident factors; Accident location; Tailgating; Traffic flow patterns; Accident reports; Night driving; Road Shoulders

AVAILABILITY: Corporate author

##### HS-005 141 Fld. 1/3

#### VISIBILITY AND HIGHWAY DESIGN: SOME NEW THOUGHT ON ACCIDENT CAUSATION

Anonymous

Published in *Highways and Public Works* v35 n1688 p16-7 (Apr 1967)

## 1/3 Investigation & Records (Cont.)

HS-005-141 (Cont.)

Discusses article in *Australian Road Research* vol. 2 no. 9, by E. F. Mullin. Outlines the role of road design standards, drugs, alcohol, vision, hallucinations, visibility, lighting, night driving, driver fatigue.

Search terms: Visibility; Lighting design; Vision; Highway design; Night driving; Drugs; Alcoholic beverages; Accident causes; Driver fatigue; Highway lighting

HS-005 142 Fld. 1/3

### A NOTE CONCERNING ACCIDENT THEORY AND RESEARCH WITH SPECIAL REFERENCE TO MOTOR VEHICLE ACCIDENTS

by William Haddon, Jr.

New York (State). Dept. of Health, Albany

Published in *Annals of the New York Academy of Sciences* v107 p635-46 (1963) 17 refs

A basic, early paper discussing injuries from the standpoint of the energy exchanges involved and the steps before, during, and after them.

Search terms: Motor vehicle accidents; Accident research; Injuries; Biomechanics; Accident causes; Pre-crash phase; Crash phase; Post-crash phase; Fatalities; Accident prevention; Injury prevention

HS-005 143 Fld. 1/4; 1/3

### THEY MARK THE WAY

by Marjie Mugno

Published in *Texas Highways* v15 n11 p3-9 (Nov 1968)

Accident investigation team collects data to help make highways safer. Accidents occurring at particular locations are studied from automatic data tabulations to find a common factor in order to correct the problem.

Search terms: Accident location; Accident investigation; Accident

analysis; Accident records; Automatic data processing; Accident causes; Hazards

HS-005 172 Fld. 3/4; 1/3

### PSYCHOLOGICAL ASPECTS OF TRAFFIC ACCIDENTS

by Leon G. Goldstein

Published in *Traffic Digest and Review* v12 n6 p10-2, 23 (Jul 1964)

Aspects discussed are the tendency to assume accidents happen only to bad drivers, to underassess dangers, to drive while drunk; the difficulty of assessing driver training for accident reduction; the place of attitudes in causing accidents; the role of age, marital status, and sex in driving accidents. Highway safety research needs are outlined. Text is from a Voice of America program for Japan, which is now dealing with the same traffic problems already familiar to Americans.

Search terms: Accident causes; Highway safety; Driver attitudes; Driver characteristics; Drinking drivers; Driver intoxication; Accident prevention; Driver education; Age factor in accidents; Age factor in driving; Sex factor in accidents; Sex factor in driving; Sociological aspects

HS-005 176 Fld. 4/7; 1/3

### DEVELOPMENT AND EVALUATION OF DETERMINISTIC MODELS FOR ESTIMATING INFLUENCE OF A FREEWAY ACCIDENT ON DELAY AND SAFETY

by Satish R. Desai

California Univ., Berkeley; Operations Research Center

Mar 1968 96p 6 refs  
Grant NSF-GK-1684  
Report no. ORC-68-4

To aid planned accident detection servicing systems for critical freeway sections, a deterministic queue model and a series of mathematical models were developed and tested.

Search terms: Mathematical models; Traffic flow; Time factors\*; Queueing theory\*; Traffic congestion; Freeways; Accident sur-

veillance; Traffic surveillance\*; Traffic simulation; Traffic capacity

AVAILABILITY: Corporate author

HS-800 107 Fld. 1/3; 5/20

### UCLA MOTOR VEHICLE SAFETY PROJECT; VEHICLE COLLISION REPORT-TASK 1 [813-D]

California Univ., Los Angeles. Dept of Engineering

Dec 1968 54p  
Contract FH-11-6690  
Report no. 813-D; PB-183 895

Cover title: COLLISION INVESTIGATION REPORT-TASK 1.

Case report of a rear-end collision between truck and tractor-trailer includes vehicle analysis (trailer securing device or the fifth wheel, cab latching mechanism, vertical restraint stops between sleeper berths all failed; occupant kinematics; vehicle performance; and accident causation factors. Sleeper berth compartment protection should be an area of prime concern.

Search terms: Trailers; Truck accidents; Case reports\*; Kinematics; Driver fatigue; Injuries; Accident investigation; Accident reconstruction\*

AVAILABILITY: CFSTI as PB-183 895

HS-800 108 Fld. 1/3; 5/20

### UCLA MOTOR VEHICLE SAFETY PROJECT. VEHICLE COLLISION REPORT-TASK 1 [843-D]

California Univ., Los Angeles. Dept. of Engineering

Dec 1968 48p  
Contract FH-11-6690  
Report no. 843-D; PB-183 896

Cover title: COLLISION INVESTIGATION REPORT-TASK 1.

Accident configuration (automobile & dual tractor-tractor), occupant kinematics, comments and recommendations (self-sealing fuel system; routine cleaning of taillights & reflectors, development of truck underide protection) are detailed in this case report.

Search terms: Multitrailers\*; Trailers; Drinking drivers; Fatalities;

### 1/3 Investigation & Records (Cont.)

HS-800-108 (Cont.)

Automobile accidents; Case reports\*; Safety design; Kinematics; Accident investigation; Accident reconstruction\*

AVAILABILITY: CFSTI as PB-183 896

HS-005 202 Fld. 1/3

#### THE POLICE ROLE IN SCIENTIFIC ACCIDENT INVESTIGATION

by Terrence T. Doherty

Published in *Law and Order* v15 n7 p18,21,74-5 (Jul 1967)

Enactment of Federal Highway Safety Act will probably lead to much interest in all facets of motor vehicle accidents. Necessary data for scientific research in accident causation can be supplied only by police who are the first ones present at scene of an accident. Sophistication of investigation results is limited due to time needed for collecting basic data, training, number of police responding to accident calls, and increased use of limited access roads which prohibits leisurely investigation and accident reconstruction procedures. Recommended is a program of police specialization in this area.

Search terms: Police; Accident investigation; Accident investigation training; Motor vehicle accidents; Safety research; Accident data; Accident causes; Accident reconstruction\*; Highway safety; Highway Safety Act of 1966\*

HS-005 203 Fld. 1/3

#### PINPOINTING PROBLEM DRIVERS

Anonymous

Published in *NADA* v40 n11 p48-9 (Nov 1968)

A study recently conducted by the Washington State Department of Motor Vehicles showed there is a strong relationship between traffic violations and involvement in accidents. Further defines relationship by age and sex. A table illustrates these relationships for the year 1966.

Search terms: Washington\*; Statistics\*; Accident factors; Accident rates; Accident studies; Traffic accident analysis; Traffic violations; Sex factor in accidents; Age factors in accidents; Problem drivers; Driver performance

HS-005 204 Fld. 1/3; 3/4

#### ROAD ACCIDENTS—HUMAN CAUSES AND GENERAL REMEDIES

by J. O. Darlington

Published in *Journal of the Institution of Highway Engineers* v14 n8 p19-22 (Aug 1967)

Considers four human factors contributing to accidents: physical, mental, temperamental, and moral. Discusses four corrective measures: engineering and production of safer vehicles, enforcement, publicity, and training schemes.

Search terms: Accident causes; Driver skills; Driver fatigue; Safety campaigns; Law enforcement\*; Careless driving; Reckless driving; Driver behavior; Driver attitudes; Safety propaganda; Driver education; Driver physical fitness; Safety design

HS-800 124 Fld. 3/5; 1/3

#### INCONCLUSIVE PROOFS OF PAY-OFF IN DRIVER EDUCATION AND OTHER CRASH PREVENTION MEASURES

by Robert Brenner

National Highway Safety Bureau, Washington, D.C.

The Highway Safety Act requires that state highway safety programs include driver education. While driver education is considered necessary, it is difficult to prove that it is effective as an accident prevention measure. It has thus been assigned a lower priority than some measures which can be proved effective, because there is not enough money in the highway safety field to pursue all measures at the same time.

Search terms: Highway Safety Act of 1966\*; Highway safety; Safety

programs; Driver education; Accident prevention; Benefit cost analysis\* State government; Driver education evaluation\*

AVAILABILITY: In Inst. for Educational Development. PROC. NATL. DRIVER EDUCATION AND TRAINING SYMPOSIA, 1969, p45-55 (HS-800 119)

HS-005 257 Fld. 1/3

#### THE OLDER DRIVER: A STATISTICAL EVALUATION OF LICENSING AND ACCIDENT INVOLVEMENT IN 30 STATES AND THE DISTRICT OF COLUMBIA

by Sherman G. Finesilver

Denver Univ., Colo. Coll. of Law

Jan 1969 40p

To determine the degree of involvement in accidents experienced by drivers 65 years of age and older, statistics were collected from 30 states and the District of Columbia. Findings reveal that the older driver is under-represented in over-all accident involvement; that fatal accident involvement is in proportion to their percentage of the population.

Search terms: Fatalities; Age factor in accidents; Injuries; Aged drivers\*; Accident data; Driver licensing; Accident rates; Accident records

AVAILABILITY: Corporate author

HS-005 258 Fld. 1/3

#### BRIDGE ACCIDENTS ON RURAL HIGHWAYS IN NEW ZEALAND: ANALYSIS AND APPRAISAL

by J. V. Brown; J. Foster

Published in *Australian Road Research Board Proceedings of the Third Conference*, Sydney v3 pt1 p638-46 (1966)

Report no. Paper-288

Study was carried out in connection with an investigation of the design of bridge approaches. Statistical analysis of variance was the technique used. The accident factors, in order of significance, were found to be: night, width ratio, right curved alignments, left curved alignments, and straight alignments. Recommendations for bridge safety are made.



## 1/3 Investigation & Records (Cont.)

HS-005-258 (Cont.)

Search terms: Accident factors; Variance analysis\*; Statistical analysis; Night driving; Bridge design; Bridge approaches\*; Accident analysis; New Zealand\*; Single vehicle accidents

HS-005 259 Fld. 1/3; 3/1

### SINGLE MOTOR VEHICLE ACCIDENTS IN CUYAHOGA COUNTY (OHIO): 1958-1963

by S. R. Gerber; Paul V. Joliet; John R. Feegel

Published in *Journal of Forensic Sciences* v11 n2 p144-51 (Apr 1966) 18 refs

Presented at the Eighteenth Annual Meeting, American Academy of Forensic Sciences, Chicago, Feb. 24, 1966.

Of the 225 cases examined, 168 deaths were due to accident injury; 57 to natural causes. Of these, 53 indicated significant cardiovascular disease. Three-fifths of those dying of injuries had blood alcohol above 0.10%. Road and weather conditions were also analyzed.

Search terms: Accident causes; Heart diseases\*; Accident factors; Drinking drivers; Blood alcohol levels\*; Fatalities; Single vehicle accidents; Weather; Driving conditions; Driver intoxication

HS-005 260 Fld. 1/3; 4/6

### EXPERT WITNESSES—TRAFFIC ACCIDENT ANALYST

by Ralph Waldo Bassett, Jr.

Published in *West Virginia Law Review* v71 n1 p45-50 (Dec 1968) 35 refs

A traffic accident analyst is defined as a person who uses special skills and knowledge to reconstruct an automobile accident. When the opinion of an expert will aid the jury in making correct determination of the factual issues a traffic accident analyst may be used. Various court

decisions involving the use of such experts are discussed, chiefly West Virginia cases.

Search terms: Accident analysis; Courts; West Virginia\*; Accident reconstruction\*; Evidence\*; Negligence\*; Accident responsibility

HS-005 261 Fld. 1/3

### TRAFFIC ACCIDENTS: MEDICAL BIBLIOGRAPHY 1955-67

Traffic Injury Research Foundation of Canada, Ottawa, Ont. (Canada)

1967 61p

Subjects included are: accidents to children; industrial traffic accidents; traffic injury and safety research; connection of alcohol and drugs to traffic accidents; neurological disorders, behavior defects, and visual implications in connection with accidents; emergency care, first aid, and ambulance services; medical and surgical problems of injured; medical assessment and driver licensing; community organizations and conferences; education and preventive measures; law and traffic accidents; general and statistical papers.

Search terms: Bibliographies; Accident causes; Children; Traffic accidents; Motor vehicle accidents; Injury research; Safety research; Drinking drivers; Driver intoxication; Drugs; Nervous system; Driver physical fitness; Statistics\*; Legal factors; Driver behavior; Vision; Emergency medical services; First aid; Ambulances; Surgery\*; Medical treatment; Driver licensing; Community support; Driver education; Accident prevention

AVAILABILITY: Corporate author

HS-005 262 Fld. 1/3

### ACCIDENTS ON MOTORWAY M4 (CHISWICK TO MAIDENHEAD) MARCH 1965 TO DECEMBER 1967

by Barbara E. Sabey

England. Road Research Lab., Crowthorne, Berks.

1969 24p 7 refs

Report no. RRL-LR-245; PB-184 044

In this analysis attention has been paid to the location of accidents, the

state of the road surfaces and whether skidding was reported, the numbers and types of vehicles involved, the direction in which they were travelling, and whether tire failure occurred. Skidding rates averaged 36% when the road was dry and 60% when the road was wet.

Search terms: Wet skidding; Accident analysis; Accident causes; Great Britain\*; Skid resistance; Accident location; Asphalt pavements\*; Pavement surface texture; Tire failures\*; Accident data; Road surfaces; Motor vehicle accidents; Travel patterns; Wet road conditions; Skidding accidents

AVAILABILITY: CFSTI as PB-184044

HS-005 282 Fld. 3/4; 1/3

### PSYCHOLOGICAL AND BEHAVIORAL ASPECTS OF AUTOMOBILE ACCIDENTS

by Ross A. McFarland

Published in *Traffic Safety Research Review* v12 n3 p71-80 (Sep 1968) 49 refs

Review of research findings suggests that methods of epidemiology and biostatistics be used for the study of accidental deaths and injuries. Discusses interrelationships between driver, vehicle and environment, both physical and social; personal factors as age, experience and training, and emotional adjustment; results of studies on alcohol, drugs, diseases and physical defects. Application of data from the field of human engineering or biotechnology in the design of vehicles and highway equipment is recommended as an important means of improving safety and achieving more efficient man-machine integration.

Search terms: Accident causes; Driver attitudes; Epidemiology\*; Biostatistics\*; Age factor in accidents; Environmental factors; Psychological factors; Driver behavior; Psychological tests; Drugs; Man machine systems; Automobile design; Driving experience\*; Driver physical fitness; Alcoholic beverages; Human factors engineering

### 1/3 Investigation & Records (Cont.)

HS-005 318 Fld. 1/3

#### ROAD ACCIDENTS IN NORTHERN NIGERIA

by P. C. Ryall

Published in *Journal of the Institution of Highway Engineers* v14 n5 p28-32 (May 1967)

While statistics indicate that accident rates in African countries are extremely high, little investigation of the causes has been done. With the cooperation of the Nigerian police, all reported road accidents in Zaria Province for 1964 have been analyzed. Fatality rates were at least ten times those of the United Kingdom; injury rates were similar. Among the causes are: mixture of high-speed motor traffic with pedestrians and cyclists; carriage of passengers and goods together in the back of trucks; carelessness of cyclists and pedestrians. Some recommendations for accident prevention are made.

Search terms: Accident rates; Fatalities; Injuries; High speed; Pedestrian accidents; Bicycle accidents\*; Truck accidents; Pedestrian behavior; Accident prevention; Nigeria\*; Africa\*; Accident causes; Police; Cargo transportation; Passenger vehicles

HS-005 319 Fld. 1/3

#### UNAWARENESS OF DANGER IN ROAD ACCIDENTS

by E. Grattan

Published in *Transactions of the Ophthalmological Society of the United Kingdom* v86 p633-7 (1966)

Study of 152 drivers' and 134 passengers admitted to hospitals for injuries suffered in road accidents. An important biological factor seems to operate in the production of accidents. An unawareness of danger predisposes to unalertness of mind and decreased capacity for foresight. Errors of omission, in which dangerous situations are not noticed and therefore not avoided, are more common than errors of commission, which are usually associated with excessive speed, alcohol, or both. Severe injury accidents were usually caused by average drivers who were

not sufficiently alert. Includes discussion on poor vision as an accident cause.

Search terms: Injuries; Driver behavior; Drinking drivers; Driver intoxication; Careless driving; Reckless driving; Visual perception; Accident causes; High speed; Young adult drivers\*

HS-005 320 Fld. 1/3

#### TOLL RISES IN 1968

by J. L. Recht

Published in *Traffic Safety* v69 n3 p6-8, 29, 39 (Mar 1969)

Gives figures on motor vehicle deaths and injuries for 1968. Deaths are given by age group, urban versus rural breakdown, state and large cities. Factors contributing to the increase are discussed.

Search terms: Motor vehicle accidents; Accident data; Age factor in accidents; Injuries; Fatalities; Urban accidents; Rural accidents; Accident factors

HS-005 321 Fld. 1/3

#### SEVEN MEDICAL PROPOSALS FOR THE PREVENTION OF INJURY AND DEATH ON THE HIGHWAYS

by Fletcher D. Woodward

Published in *Southern Medical Journal* v59 n5 p557-63 (May 1966)

Physicians should play a leading role in promoting highway safety. The most useful measures are: good driver training courses; better driver license standards; establishment of medical referral committees to weed out physically and mentally unfit drivers; use of three classes of driving permits for private, commercial, and passenger-carrying vehicles; more severe punishment for drinking drivers; more strict law enforcement for speeders and reckless drivers; and safer automotive design.

Search terms: Physicians\*; Community support; Highway safety; Driver education; Driver license standards; Driver physical fitness; Driver licensing; Commercial vehicles; Passenger vehicles; Drinking drivers; Driver intoxication; Law enforcement\*; Speed; Reckless driving; Safety design; Automobile design

HS-005 322 Fld. 1/3; 1/4

#### WATERLOO, NEBRASKA, PUBLIC SCHOOL BUS, UNION PACIFIC RAILROAD COMPANY FREIGHT TRAIN ACCIDENT WATERLOO, NEBRASKA, OCTOBER 2, 1967. HIGHWAY-RAILROAD ACCIDENT REPORT

National Transportation Safety Board, Washington, D.C.

18 Sep 1968 66p  
Report no. SS-R/H-3

Describes an accident in which four children were killed and nine injured. Bus driver was driving into the sun without use of sunglasses or the sun visor and did not see the train. Train horn was sounding, bell ringing, and headlight burning, but bus driver and children did not hear it. The grade crossing was unprotected.

Search terms: Accident reports; School buses; Railroad grade crossings\*; Bus drivers; Glare; Visibility; Warning systems; Headlights; Hearing\*; Fatalities; Children; Crash injuries; Accident causes

AVAILABILITY: Corporate author

HS-005 323 Fld. 1/3

#### A NATIONAL HIGHWAY ACCIDENT RECORDS CENTER IN THE FEDERAL ESTABLISHMENT

Surveys and Research Corp., Washington, D.C.

1966 118p 11 refs

This report covers the need for a national highway accident records center (HARC), the basic technical and administrative considerations for establishing one, its objectives, what data are now available and feasible to use, centralized versus decentralized operations, the data system suggested, publication and use of the information collected, the organization of such a center, a program to implement it, the role of other organizations, and the fiscal requirements.

Search terms: Accident records; Accident data; Data acquisition; Information systems; Highway safety; Motor vehicle accidents; Administrative procedures; Management; Surveys

AVAILABILITY: Reference use only in NHSI Doc Center; no copies available for distribution



## 1/3 Investigation &

### Records (Cont.)

HS-005 353 Fld. 3/1; 3/7; 1/3

#### A STUDY: ROLES OF ALCOHOL, DRUGS AND ORGANIC FACTORS IN FATAL SINGLE VEHICLE ACCIDENTS

by Harold W. Sullivan

Published in *Police Chief* v35 n3 p16, 18, 20 22 (Mar 1968)

Report version is available from CFSTI as PB-175-942 (see HS-000 998).

A study was made of 1,474 single vehicle accidents in California; 155 of these deaths were attributed to natural causes and the rest to injuries. For 772 cases a blood alcohol sample could be obtained, and figures are given for sex, age, accident record, and other characteristics of these drivers. The problems of drugs and deaths from natural causes are outlined briefly.

Search terms: Single vehicle accidents; Accident analysis; Fatalities; Blood alcohol level\*; Sex factor in accidents; Age factor in accidents; Driver records; Drugs; Driver characteristics; California\*; Alcoholic beverages; Fatalities from natural causes\*

HS-005 357 Fld. 3/4; 1/3

#### HOW TO AVOID AUTOMOBILE ACCIDENTS!

by Fred E. Taylor

1968 146p

Published by Crown Publishers, Inc., New York, at \$3.95

A general study of the accident problem. Includes unsafe design in highways, cars, bridges, signs, and other hazards; driver education and capability; improper laws and enforcement; inadequate signs; crash studies; drunk and careless drivers; mass transit and automatic highways; human performance capabilities. Includes much advice on defensive driving.

Search terms: Automobile accidents; Defensive driving\*; Highway design; Bridge design; Signs (displays); Hazards; Driver education; Driver skills; Law enforcement\*; Accident prevention; Legislation; Crash research; Drinking

drivers; Driver intoxication; Careless driving; Mass transportation; automatic highways; Human behavior; Negligence\*; Accident location; Automobile design

HS-005 375 Fld. 5/22; 1/3

#### AN UNUSUAL CASE OF TYRE DAMAGE RESULTING FROM A HIGH SPEED ACCIDENT

by R. M. Mitchell; C. F. Tippet

Published in *Journal of Forensic Science Society* v7 p180-1 (Oct 1967)

A sports car skidded and mounted a hedge. Examination of the tire (driver reported a "blowout") revealed a piece of wood 2 inches square inside the inner tube. The fragment came from a tree at the scene of the accident. Investigators are reminded that an object piercing a tire can leave a slit smaller than the piece itself.

Search terms: Careless driving; Accident investigation; Tire failures\*; Skidding accidents; High speed

HS-810 071 Fld. 1/3; 3/4

#### SAFE DRIVING, A WAY TO A BETTER LIFE

by Robert Brenner

National Highway Safety Bureau, Washington, D.C.

24 Apr 1969 12p

Remarks prepared for delivery before the Sixteenth Annual District of Columbia Teenage Traffic Safety Conference, Washington, D.C.

Discusses the increasing accident rate, especially among young drivers. Comments on the need for the automobile in cities, where public transportation is deteriorating. Explains the work of the National Highway Safety Bureau in accident prevention, drunk driver control, crash protection, motorcycle safety, emergency medical services, and other aspects of highway safety.

Search terms: Driver behavior; Accident rates; Young adult drivers\*; Public transportation; Urban areas; National Highway Safety Bureau\*; Accident preven-

tion; Drinking drivers; Driver intoxication; Occupant protection; Motorcycle safety; Emergency medical services; Highway safety

AVAILABILITY: NHSB

HS-005 381 Fld. 1/3

#### ESTIMATING THE SPEED OF A MOTOR VEHICLE IN A COLLISION

by Conrad K. Rizer

Published in *Journal of Criminal Law, Criminology and Police Science* v58 n1 p119-27 (Mar 1967)

Five methods for determining the coefficient of friction and the speed of a car in a collision are presented. Two cases are described in which these methods are used to reconstruct fatal accidents.

Search terms: Collisions (accidents); Automobile accidents; Skidmarks\*; Friction; Accident reconstruction\*; Speed; Accident analysis; Mathematical analysis\*; Fatalities

HS-005 382 Fld. 1/3; 5/6; 3/1; 3/7

#### THE ROLES OF CARBON MONOXIDE, ALCOHOL, AND DRUGS IN FATAL SINGLE CAR ACCIDENTS (ADVANCE REPORT)

California. Dept of Highway Patrol Sacramento

Oct 1965 30p 10 refs

Prepared in cooperation with Bureau of Public Roads, Washington, D.C.

Carbon monoxide was found to be a negligible factor. About 12% of the fatalities studied were taking drugs, but the detection process was not complete. Blood alcohol level was .10% or more in 70% of the male and 40% of the female drivers. There was a considerable incidence of arrests for drunkenness and other criminal behavior in the previous records of these subjects. About 10% of the cases were drivers who died from natural causes just before their accidents; these were middle-aged and elderly male drivers. Study was based on 380 subjects.

Search terms: Carbon monoxide; Fatalities; Drugs; Blood alcohol

### 1/3 Investigation &

#### Records (Cont.)

HS-005-382 (Cont.)

levels\*; Sex factor in accidents; Driver records; Drinking drivers; Driver intoxication; Adult drivers; Aged drivers\*; Accident studies; Single vehicle accidents; Accident factors; Case reports\*; Carboxyhemoglobin\*; Heart diseases\*; Alcoholic beverages; Diabetes mellitus\*; Fatalities from natural causes\*

AVAILABILITY: Corporate author

HS-005 383 Fld. 1/3

#### A REVIEW OF ROAD ACCIDENT RESEARCH

by G. M. Mackay

Birmingham Univ., Warwick (England). Dept. of Transportation and Environmental Planning

Dec 1966 142p

Report no. Dept-Pub-18

Reviews selected literature on road accidents. Categories covered are general statistics; traffic engineering, including roads, lighting, speed; vehicle engineering and design, including crashworthiness; aircraft engineering in comparison with automobiles; physiological considerations involving drivers; motor vehicle injuries; alcohol and traffic accidents; psychological considerations involving drivers; economic and legal aspects of the accident problem.

Search terms: Crashworthiness\*; Drinking drivers; Psychological factors; Human factors engineering; Highway safety; Motor vehicle safety; Physiology; Injuries; Alcoholic beverages; Legal factors; Economic factors; Costs\*; Reviews\*; Accident data; Highway design; Speed; Highway lighting; Driver behavior; Automobile design; Traffic engineering

AVAILABILITY: Corporate author

HS-005 384 Fld. 1/3

#### UTAH TRAFFIC ACCIDENTS AND ACCIDENT RATES, 1968

Utah. Dept. of Highways, Salt Lake

City

Apr 1969 99p

Prepared in cooperation with Bureau of Public Roads, Washington, D.C.

This report illustrates comparisons of motor vehicle traffic accident rates for Federal and State designated highways. It is concluded that the degree of safety realized on highways cannot be fully measured by year to year comparisons of accidents; accidents are not increasing at the same rate as increasing traffic volumes or vehicle miles of travel; and the most feasible method of comparing accidents is by exposure or experience rates based on traffic volume, length of highway, and accident occurrences over a given period of time.

Search terms: Accident rates; Utah\*; Time factors\*; Accident reports; Traffic accident analysis; Accident location; Fatalities; Injuries; Property damage; Highway characteristics; Vehicle miles\*; Traffic volume; Accident data

AVAILABILITY: Corporate author

HS-005 420 Fld. 1/3

#### STATISTICAL INVESTIGATION OF INTERSECTION ACCIDENTS IN ROAD TRAFFIC IN FINLAND DURING 1962-1965 ABRIDGEMENT

by Urpo Leppanen

Central Organisation for Traffic Safety in Finland, Helsinki (Finland)

1969 32p 34 refs

Report no. TALJA-9

Bound with *Its* ROAD TRAFFIC ACCIDENTS OCCURRING IN THE DARK.

An alarming increase in the number of intersection accidents in Finland has been observed. This investigation adapts statistical multivariate methods to the treatment of traffic accident statistics. The driver's decision making process is examined and recommendations are made for reducing intersection accidents. Better driver education and licensing standards, better intersection and road design are suggested.

Search terms: statistical analysis;

Accident analysis; Intersections; Multivariate analysis\*; Decision making\*; Driver behavior; Accident factors; Finland\*; Driver education; Driver license standards; Highway design; Accident data

AVAILABILITY: Corporate author  
Iso Roobertinkatu 20, Helsinki 12, Finland

HS-005 421 Fld. 1/3

#### TRAFFIC ACCIDENTS INVOLVING CHILDREN IN HELSINKI IN 1965 AND THE SOCIAL BACKGROUND OF THE CHILDREN INCLUDED

by Liisa Ratilainen

Central Organisation for Traffic Safety in Finland, Helsinki (Finland)

1968 79p 26 refs

Report no. TALJA-7

Children involved in traffic accidents were below average in school subjects and athletic ability. Investigation was made of parental use of alcohol, family type, social conditions, and social adaptation. Social conditions influence both accident involvement and school success. Accident involvement risk cannot be predicted from school success, however.

Search terms: Accident proneness; Children; School traffic safety; Accident analysis; Finland\*; Accident factors; Socioeconomic data; Accident risks; Accident data; Sociological aspects; Alcoholic beverages

HS-005 422 Fld. 1/3

#### ROAD TRAFFIC ACCIDENTS OCCURRING IN THE DARK

by Sauli Hakkinen, Urpo Leppanen

Central Organisation for Traffic Safety in Finland, Helsinki (Finland)

1969 27p

Report no. TALJA-9

Bound with *Its* STATISTICAL INVESTIGATION OF INTERSECTION ACCIDENTS IN ROAD TRAFFIC IN FINLAND DURING 1962-1965. ABRIDGEMENT.

Analyzes accidents occurring in the dark under Finnish conditions to determine efficient countermeasures. Findings reveal that 11% more accidents occur in darkness than daylight; pedestrians have a 2.5-fold fatality

### 1/3 Investigation & Records (Cont.)

HS-005-422 (Cont.)

risk rate; 100 to 214 pedestrians killed could have been saved if the effect of darkness were eliminated.

Search terms: Night driving; Injuries; Finland\*; Accident analysis; Weather; Fatalities; Pedestrian accidents; Visibility; Environmental factors; Accident data; Highway lighting; Illuminating; Accident prevention

AVAILABILITY: Corporate author; Iso Roobertinkatu 20, Helsinki 12

HS-005 423 Fld. 1/3

#### ACCIDENT FACTS, AN ILLUSTRATED ANALYSIS OF 1967 ACCIDENT RECORDS AND TRENDS AND CHANGES IN THE FIRST SIX-MONTHS OF 1968

New York (State). Dept. of Motor Vehicles, Albany.

Dec 1968 50p

New York State fatalities increased by 2.5% during 1967 while injuries dropped by 2.1%. Trends for the first six months of 1968 indicate substantial increases in number of deaths, injuries, and number of accidents. Age and environmental factors, pedestrian involvement, severity of injuries, and directional diagrams of accidents are included.

Search terms: Fatalities; Injuries; New York\*; Accident data; Accident rates; Age factor in accidents; Environmental factors; Pedestrian accidents; Accident types; Injury severity

AVAILABILITY: Office of Public Information, 504 Central Ave., Albany, N.Y. 12206

HS-005 424 Fld. 1/3

#### ACCIDENT FACTS. 1966 EDITION

New York (State). Dept. of Motor Vehicles, Albany

1966 35p

The 1965 accident picture for New York State reveals increases for total accidents (13%), personal injury (9.5%), and property damage (16.5%)

over 1964; Fatal accidents decreased (-2.5%).

Search terms: Fatalities; Injuries; New York\*; Property damage; Accident data; Pedestrian accidents; Motorcycle accidents; Motor vehicle registration; Accident types; Accident rates

AVAILABILITY: Corporate author

HS-005 425 Fld. 1/3; 5/14

#### A STUDY OF SEAT BELTS IN WISCONSIN AUTOMOBILE ACCIDENTS

by John W. Garrett

Cornell Aeronautical Lab., Inc., Buffalo, N.Y. Automotive Crash Injury Research

9 Sep 1963 26p 7 refs  
Grant PHS-AC-00101-01  
Report no. CAL-VJ-1823-R3

Examination of rural injury-producing accidents showed that seat belts were installed in 19.4% of all cars reported and were used by 51.7% of the occupants who had belts available. Seat belt usage in Wisconsin and out-of-state was compared. Installation and usage were found higher in Wisconsin. Men used the belts more than women. Age was not a factor.

Search terms: Seat belt usage\*; Wisconsin\*; Automobile accidents; Accident records; Rural accidents; Injury factors; Age factors; Sex factors; Accident analysis

AVAILABILITY: Corporate author

HS-005 480 Fld. 1/3

#### ACCIDENT CAUSES AND COUNTERMEASURES

by David M. Baldwin

Published in *Traffic Engineering* v36 n6 p31-3 (Mar 1966)

Points out types of highway design which are dangerous and suggest that accidents should be analyzed to determine what highway features are at fault. Traffic engineers could then design safer highways. Suggests that instead of the 15% of all accidents commonly attributed to the highway, at least three times this percentage can be at least partly attributed to highway design.

Search terms: Highway design;

Accident causes; Accident analysis; Traffic engineering; Safety design; Hazards; Accident prevention; Safety engineering

HS-005 481 Fld. 1/3; 3/4

#### HUMAN FACTORS IN ROAD ACCIDENTS

by Michel Roche

Published in *International Criminal Police Review* v23 n216 p58-66 (Mar 1968)

Examines the human aspects of the environment-man-car system to see how accidents can be prevented. Discusses psycho-social aspects of the problem and the influence of physical factors on driving.

Search terms: Man machine system; Human factors engineering; Psychological factors; Sociological aspects; Accident prevention; Driving conditions; Driver physical fitness; Environmental factors; Driver behavior; Driver-vehicle interface

HS-800 151 Fld. 1/3

#### UCLA MOTOR VEHICLE SAFETY PROJECT. VEHICLE COLLISION REPORT-TASK 1 [784-D & 855-D]

California Univ., Los Angeles. Dept. of Engineering

Dec 1968 38p  
Contact FH-11-6690

Report no. 784-D; 855-D

Cover title: COLLISION INVESTIGATION REPORT-TASK 1. Case Study.

Two case studies of collisions of 1968 Cadillacs with (1) a traffic signal standard base (driver slightly injured), and (2) the side of a building (driver uninjured). Both drivers claimed that gas pedals stuck in wide open position.

Search terms: Case reports\*; Accident investigation; Age factor in accidents; Aged drivers; Collisions (accidents); Accelerator pedals\*; Single vehicle accidents; Accident reports

AVAILABILITY: CFSTI

### 1/3 Investigation & Records (Cont.)

HS-800 152 Fld. 1/3

#### UCLA MOTOR VEHICLE SAFETY PROJECT. VEHICLE COLLISION REPORT-TASK 1 [850-D]

California Univ., Los Angeles. Dept. of Engineering

Dec 1968 66p

Contract FH-11-6690

Report no. 850-D

Cover title: COLLISION INVESTIGATION REPORT-TASK 1.

Case involves vehicle which failed to negotiate a curve and struck the end of a guard rail on a rural road. Guard rail penetrated right front compartment fatally injuring 14-year old female occupant. The placement of the guard rail created a hazard to a vehicle unable to negotiate the curve. Too, the 65mph speed limit is 30mph higher than the maximum safe design speed for a curve of this radius (527.5 ft) recommended by AASHO.

Search terms: Case reports\*; Accident investigation; Fatalities; Guardrails; Guardrail design; Single vehicle accidents; Collisions (accidents); Road curves; Hazards; Speed limits; Rural accidents; Road design speed; Accident reports

AVAILABILITY: CFSTI

HS-005 520 Fld. 1/3; 5/18

#### SAFETY IN CARS

by H. F. Copp

Ford Motor Co. Ltd., Brentwood, Essex (England)

Published in *Automobile Engineer* v58 n3 p102-6 (Mar 1968)

Presented at the Institution of Mechanical Engineers, Car Safety Conference, Coventry, England.

Compares traffic fatalities with other accident fatalities in order to place the highway safety problem in proper perspective. Countermeasures suggest prevention of accidents and injuries through highway and vehicle safety design. The energy absorbing steering wheel is discussed.

Search terms: Steering columns; Energy absorption; Accident pre-

vention; Injury prevention; Safety design; Fatalities; Great Britain\*; Steering wheels; Accident rates

HS-005 550 Fld. 2/4; 1/3

#### RESULTS FROM STUDIES OF HIGHWAY GROOVING AND TEXTURING BY SEVERAL STATE HIGHWAY DEPARTMENTS

by Larry G. Mosher

Clipper Mfg. Co., Kansas City, Mo.

7 refs

Pavement grooving effectively prevents wet-weather accidents. Transverse grooves are usually most beneficial for reducing stopping distances at intersections, crosswalks, toll booths. Curves, bridges, ramps and open roads benefit from longitudinal grooving. Summaries of state projects are included.

Search terms: Wet road conditions; State government; Grooving\*; Accident prevention; Wet skidding; Skidding accidents; Bridges (structures); Stopping distance; Accident location; Road curves; Intersections; Ramps; Crosswalks; Highway surfaces

AVAILABILITY: Paper 27 in NASA's *Pavement Grooving and Traction Studies* (N69-20451) p465-504 (HS-005 522)

HS-005 556 Fld. 3/5; 1/3

#### GREATER TRAFFIC SAFETY: DIMENSIONS AND GUIDELINES

by Leon Brody

Published in *Safety* v4 n1 p20-1 (Jan/Feb 1968)

Suggests that emphasis should be placed on the understanding of general principles of traffic flow and traffic accidents, rather than on isolated events. Discusses 18 points reflecting a logical approach to the accident problem. Many of the points deal with driver education.

Search terms: Accident prevention; Driver education; Traffic safety; Traffic accidents; Traffic flow

HS-005 567 Fld. 1/3; 4/7

#### COMPUTER PREDICTS CAR

### MOTIONS, "DRAWS" CARTOONS

Anonymous

Published in *Transportation Research Review* p4-5 (3rd-4th Q 1968)

Experiments using mathematical models to describe the mechanics of various car jumps have been conducted at the Cornell Aeronautical Laboratory. Computerized simulation produces an animated three dimensional display using cathode-ray tubes and motion picture film. The work is part of research on single-vehicle accidents.

Search terms: Single vehicle accidents; Photography; Crash simulation; Computerized simulation; Mathematical models; Forecasting; Motion

HS-005 612 Fld. 1/3

#### SPEED AND ROAD ACCIDENTS

by P. J. Rigden; D. J. W. Wium

Published in *Robot* n41 p24-35 (Dec 1968-Jan 1969)

Presented to the 9th annual general meeting of the South African Road Safety Council, Oct. 28, 1968

Various studies on the relation of speed to accidents are described, and some findings summarized. Suggestions are made for the Republic of South Africa: data should be gathered on the relation between accident frequency and severity and speed; driver education should emphasize the danger of high speed; speed limits should be more thoroughly enforced; and the merits of mechanized speed limit enforcement should be investigated.

Search terms: Republic of South Africa\*; High speed; Driver education; Accident causes; Accident severity; Accident rates; Driver education; Law enforcement\*; Speed limits; Automatic control; Data acquisition

HS-005 613 Fld. 1/3

#### SAFE OR DANGEROUS? AN INTERNATIONAL COMPARISON OF TRAFFIC ACCIDENT FIGURES

by J. C. A. Carlquist

Published in *Traffic Engineering* v36

### 1/3 Investigation & Records (Cont.)

HS-005-613 (Cont.)

n11 p31-5 (Aug 1966)

It is impossible to compare the traffic accident figures of one country with those of another because of the differences in record keeping. International comparisons are valuable in determining factors responsible for accidents, but interpretation of comparative figures should be made very carefully. Statistics are given on motor vehicle deaths and injuries and pedestrian deaths in European countries and the United States.

Search terms: Accident data; Accident records; Accident factors; Accident analysis; Fatalities; Injuries; Pedestrian accidents; Europe\*; United States\*; Statistical analysis

HS-005 614 Fld. 1/3

#### THE TOLL OF THE ROAD-CLINICAL ASPECTS

by Kenneth G. Jamieson

Published in *Medical Journal of Australia* v2 n4 p157-60 (23 Jul 1966)

Examines the high risk and incidence of accidents, their sociological implications, the multiplicity and complexity of injuries sustained, the high mortality rate, the hospital problem, the great frequency of head injury and the lethal character of head and chest injuries in particular, and the need for specific teaching of these aspects to surgeons who may have to deal with traffic accident victims. Data are given for 1,000 accident victims in Brisbane, Australia, by type of accident, age, sex, time of accident, type of injury, and causes of death.

Search terms: Accident data; Accident risks; Fatalities; Head injuries; Chest injuries; Accident factors; Sociological aspects; Emergency medical services; Hospitals\*; Physicians\*; Age factor in accidents; Sex factor in accidents; Time factors; Injury factors; Australia\*; Statistics\*

HS-005 615 Fld. 1/3

#### THE REPORTING LEVEL OF CALIFORNIA STATE HIGHWAY ACCIDENTS

by Richard N. Smith

Published in *Traffic Engineering* v36 n9 p20-5 (Jun 1966)

Comparison was made of reports filed by Division of Highways employees involved in accidents and reports received from the police. It was found that less than 50% of all accidents are reported. Accident severity, police jurisdiction, number of vehicles involved, and time of accident all influenced reporting level. The California Highway Patrol reports accidents at a uniform level, but city police departments report property damage accidents at a lower level.

Search terms: Accident reports; Police; Accident severity; Accident types; Time factors\*; Property damage; Unreported accidents; Motor vehicle accidents; Local government; State government; Police traffic services

HS-005 616 Fld. 1/3

#### FACT V. EMOTION IN TRAFFIC SAFETY

by Terrence T. Doherty

Published in *Medicine, Science and the Law* p147-50 (Jul 1965)

Presented to American Academy of Forensic Sciences, Chicago, Feb. 27, 1965

The chief of the Chicago Police Department's Traffic Division describes the efforts made in Chicago to base traffic control on facts gathered from police accident reports which clearly indicate accident causes. Traffic control to prevent accidents cannot be based on unproved ideas. Discusses fallacies about accident causes, especially the idea that slow drivers cause accidents and that expressways are made for high-speed driving. Attributes accidents to violation of traffic laws and discusses ways to encourage more careful driving.

Search terms: Accident reports; Traffic control; Accident causes; Accident prevention; Speed; High

speed; Traffic laws; Traffic violations; Driver behavior; Driver attitudes; Controlled access highways; Chicago\*

HS-005 617 Fld. 1/3; 5/2

#### SAFETY MESSAGES: INEPT OR INSPIRING

by Bill McCarty

Published in *Trucking Business* v63 n3 p20-5 (Mar 1969)

It is suggested that the safety programs of truck drivers should be reassessed. Truck accident reports from 10 states have been studied to determine their pattern. Some of the findings are outlined. It is suggested that truck fleet operators should adopt new safety innovations and attitudes to improve their safety record and to avoid costly lawsuits.

Search terms: Safety programs; Truck drivers; Truck accidents; Accident analysis; Legal factors; Accident rates; Driver attitudes; Accident reports; Truck accidents

HS-005 618 Fld. 1/3

#### ACCIDENT CHARACTERISTICS OF NON-ARTERIAL STREETS

by Paul C. Box

Published in *Traffic Digest and Review* v12 n3 p12, 17-9 (Mar 1964)

The accident records of Skokie, a Chicago suburb, were analyzed. Intersection accidents were divided into nine groups and midblock accidents into ten groups. Accident causes, types, and rates are outlined. Good accident records are necessary for this type of study. Further studies are recommended to determine if changes should be made in street width, intersection design, or subdivision layout patterns.

Search terms: Chicago\*; Suburban areas; Accident analysis; Accident causes; Accident types; Accident rates; Accident records; Streets; Intersections; Land use; Traffic flow patterns

HS-005 620 Fld. 1/3; 2/9

#### AN EXAMINATION OF THE EFFECT OF RAISING THE SPEED LIMIT IN BUILT-UP AREAS IN VICTORIA

by B. C. S. Harper

### 1/3 Investigation & Records (Cont.)

#### HS-005-620 (Cont.)

Published in *Australian Road Research Board Proceedings of the Third Conference, Sydney* v3 pt1 p647-88 (1966)

Report no. Paper-296

Studies of the effects of increasing the urban speed limit from 30 to 35 mph include traffic density and the possible effect on accident rates. The comparison suggests that the shape of the density function of vehicle speeds may be a contributing factor in accident occurrence. Accident statistics, mileage statistics, and speed patterns are given.

Search terms: Speed limits; Accident rates; Urban areas; Australia\*; Accident factors; Vehicle miles\*; Speed patterns; Traffic density; Accident data

#### HS-005 621 Fld. 1/3

##### SINGLE-VEHICLE ACCIDENTS ON ROUTE 66

by J. Stannard Baker

Published in *Journal of Criminal Law, Criminology and Police Science* v58 n4 p583-95 (Dec 1967)

Supplementary information on four types of single-vehicle accidents was obtained: collision on road with fixed object, overturned on road, ran off road. Special data collected was: factual information about circumstances of the accident; police opinions about contributing factors; and comparisons which would help evaluate the reliability of police inferences in accident reporting. Discussion of collected data includes information on time, seat belt usage, operational failure, age and sex of driver, risk index by vehicle type, speed, contributing factors, and skill.

Search terms: Single vehicle accidents; Collisions (accidents); Roll-over accidents; Accident data; Accident reports; Accident risks; Accident causes; Accident investigation; Age factor in accidents; Sex factor in accidents; Speed; Driver skills; Time factors\*; Seat belt usage\*; Police; Accident types; Accident factors

#### HS-005 699 Fld. 3/5; 1/3

##### POLICE FLEET SAFETY: TRAINING AND DISCIPLINARY PRACTICES. PART 3

by Martin W. Johnson

Published in *Traffic Digest and Review* v13 n10 p9-12 (Oct 1965)

A good accident record system is essential to a fleet safety program. A review board should analyze accidents and determine which ones should have been preventable and what action should be taken if a police driver was negligent. Careless handling of police cars is also discussed. Guidelines for determining the preventability of accidents are given.

Search terms: Police; Driver education; Accident analysis; Accident records; Negligence\*; Police cars\*; Fleets (motor vehicles); Safety programs; Careless driving; Accident prevention; Fleet driver training\*

#### HS-005 670 Fld. 1/3

##### THE RELATIONSHIP OF FLEET SAFETY PROGRAMS TO ACCIDENT FREQUENCY RATES IN SELECTED CITY DELIVERY FLEETS.

by Walter D. Weiss

Michigan State Univ., East Lansing. School of Police Administration and Public Safety

1966 151p

M.S. thesis. Appendix D not included.

Motor vehicle safety programs are based on the premise that accidents result from human failures under routine conditions. Safety programs are expected to reduce the accident experience of drivers. This study tested the hypothesis that there is no difference in the accident rates in fleets using standard safety programs and those with substandard programs. In all but one of the comparisons, a difference in frequency rate trends occurred in companies with standard fleet safety programs as contrasted to those using sub-standard programs.

Search terms: Accident rates; Accident causes; Driver behavior; Safety programs; Motor vehicle safety; Fleets (motor vehicle); Fleet driver training\*

AVAILABILITY: Corporate author

#### HS-005 673 Fld. 2/5; 1/3

##### A STUDY OF THE BENEFITS OF SUBURBAN HIGHWAY LIGHTING

Tennessee Valley Authority, Chattanooga

Published in *Illuminating Engineering* v64 n4 p359-63 (Apr 1969 Sec. 2)

This study was made to determine the effectiveness of highway lighting in reducing automobile accidents. Figures are given for accidents, injuries, and deaths during the year prior to the installation of lighting and for the two-year period after lighting was installed. After the installation of highway lighting, accidents were reduced 22 per cent and injuries were reduced 39 per cent per million vehicular miles. A discussion of costs is included.

Search terms: Suburban areas; Highway lighting; Fatalities; Injuries; Tennessee\*; Traffic flow; Accident prevention; Costs\*; Vehicle miles\*; Accident data; Accident rates; Night driving

#### HS-005 683 Fld. 3/1; 1/3

##### ALCOHOL INVOLVEMENT IN FATAL MOTOR VEHICLE ACCIDENTS

by E. O. F. Campbell

Published in *Modern Medicine of Canada* v24 n4 p35-42 (Apr 1969) 8 refs

Results of measurement of blood alcohol levels in a study of motor vehicle fatalities included the following: among all tested drivers considered responsible for their accidents, 61.3% had been drinking and 51.1% had blood alcohol levels of 0.10% or more; pedestrians killed in traffic accidents appear to have been drinking in 53.9% of those who were tested. 1,163 dead drivers were examined for blood alcohol, and 281 pedestrian deaths were documented.

Search terms: Blood alcohol levels\*; Drinking drivers; Pedestrian intoxication; Fatalities; Accident causes; Accident data; Driver intoxication; Canada\*



### 1/3 Investigation & Records (Cont.)

HS-005 686 Fld. 3/1; 1/3

#### THE ROLE OF ALCOHOL IN FATAL COLLISIONS WITH TRAINS

by Julian A. Waller

Published in *Northwest Medicine* v67 n9 p852-6 (Sep 1968)

A study was made of 94 persons killed in collisions with trains in California. Thirty per cent of drivers, 55 per cent of passengers, and 64 per cent of pedestrians age 15 or older who survived 6 hours or less had been drinking. Most of those injured at night had been drinking, frequently with very high alcohol concentrations and histories of previous arrests for misuse of alcohol. Gates are recommended for all such intersections.

Search terms: Age factor in accidents; Drinking drivers; Alcoholic beverages; Passengers; Railroad grade crossings\*; Fatalities; Collisions (accidents); Injury factors; Driver intoxication; Blood alcohol levels\*; Pedestrian intoxication; Barriers; Pedestrian accidents; Alcoholism; California\*

HS-005 692 Fld. 3/4; 1/3

#### ACCIDENTS AND EXPRESSWAY DRIVING

by D. Grant Mickle

Published in *American Road Builder* v44 n6 p8-10 (Jun 1967)

The freeway is the first significant change in design since the wagon road. The kinds of errors drivers make in freeway driving are discussed and freeway driving is contrasted with conventional road and street driving. The skills needed are basically the same. The sociological impact of the freeway is outlined.

Search terms: Freeways; Driver skills; Driver behavior; Driving tasks; Sociological aspects; Accident types; Freeway planning:

HS-005 699 Fld. 3/5; 1/3

#### POLICE FLEET SAFETY: TRAINING AND DISCIPLINARY PRACTICES. PART 3

by Martin W. Johnson

Published in *Traffic Digest and Review* v13 n10 p9-12 (Oct 1965)

A good accident record system is essential to a fleet safety program. A review board should analyze accidents and determine which ones should have been preventable and what action should be taken if a police driver was negligent. Careless handling of police cars is also discussed. Guidelines for determining the preventability of accidents are given.

Search terms: Police; Driver education; Accident analysis; Accident records; Negligence\*; Police cars\*; Fleets (motor vehicles); Safety programs; Careless driving; Accident prevention; Fleet driver training\*

HS-005 717 Fld. 5/14; 1/3

#### A FRESH LOOK AT SEAT BELTS

Anonymous

Published in *Journal of American Insurance* v43 n5 p9-12 (Nov-Dec 1967)

Research now indicates that seat belts could save 14,000 lives a year. A jury found failure to use shoulder belt amounted to contributory negligence by the driver. Insurance Institute for Highway Safety is urging states to make seat belt usage mandatory.

Search terms: Seat belt usage\*; Restraint systems; Legal factors; Injury prevention; Negligence\*; Shoulder harnesses; Fatalities

HS-005 731 Fld. 1/3

#### A U T O M O B I L E S - HIGHWAYS-DEATHS: AN ANALYSIS OF OUR AUTOMOBILE CULTURE IN RELATION TO DEATH AND INJURY ON THE HIGHWAY

by Eldon Fillman

Published in *Journal of Kansas Medical Society* v70 n1 p1-6 (Jan 1969) 19 refs

Causation of injuries, restraint systems, crashworthiness of the modern automobile, the role of driver physical fitness and alcohol in highway crashes, pedestrian deaths and injuries, seat belt injuries, measures to

control highway deaths and injuries are topics discussed.

Search terms: Highway safety; Fatalities; Injuries; Driver behavior; Accident causes; Safety design; Crashworthiness\*; Alcoholic beverages; Sociological aspects; Driver intoxication; Restraint systems; Pedestrian accidents; Accident prevention; Drinking drivers; Driver physical fitness; Alcoholism

HS-005 732 Fld. 1/3

#### THE ACCIDENT EXPERIENCE OF LONDON BUS DRIVERS

by C. J. Cornwall

Published in *Annals of Occupational Hygiene* v5 p69-82 (Apr-Jun 1962)

Traffic accidents experienced by London Transport drivers of buses and trolleybuses are analyzed for the years 1957-1959. The number of accidents per driver is given separately for drivers on each type of service, subdivided by age and by length of service. A marked improvement in the accident rates is shown to occur with increasing experience.

Search terms: Accident analysis; Bus drivers; Age factor in accidents; Traffic accidents; London\*; Accident data; Accident factors; Driving experience\*; Driver skills; Accident rates

HS-005 733 Fld. 1/3

#### INTERSTATE SYSTEM ACCIDENT RESEARCH

by Stanley R. Byington

Published in *Public Roads* v32 n11 p256-66 (Dec 1963) 7refs

This article reports the initial findings of a study comparing the traffic accident experience on completed portions of the Interstate Highway System with that on nearby highways. Results of the comparison show that accident rates on the Interstate System are about half as great as those on nearby highways and injury and fatality rates are about one-third as great. The greatest reduction in accident rates was in more densely populated areas and the greatest reduction in fatalities was in rural areas.

Search terms: Interstate Highway

## 1/3 Investigation &

### Records (Cont.)

#### HS-005-733 (Cont.)

System\*; Accident studies; Accident location; Accident types; Controlled access highways; Free-ways; Fatalities; Injuries; Rural areas; Urban areas; Accident rates; Accident data; Traffic volume; Access control; Collisions (accidents)

#### HS-005 734 Fld. 1/3

#### TRAFFIC ACCIDENTS ON THE WAY TO WORK

by J. R. Gosset

Published in *World Medical Journal* v12 n5 p145 (Sep-Oct 1965)

Traffic accidents on the way to or from work are considered as occupational accidents in France, and reliable statistics on them are available. The substitution of communal transport for individual vehicles can cut the accident rate among commuters. Of 5 million French workers using a personal vehicle, 2½ million use motorcycles or scooters and 1½ million use bicycles. These two-wheeled vehicles have the majority of accidents, which are more serious and involve younger workers.

Search terms: Motorcycle accidents; Bicycle accidents\*; Traffic accidents; France\*; Public transportation; Motor scooters; Accident rates; Work accidents; Accident records; Age factor in accidents; Accident severity; Work trips; Commuting patterns

#### HS-005 735 Fld. 1/3; 4/7

#### NSC COMPUTER OPENS UP NEW AVENUES OF ACCIDENT INVESTIGATION

Anonymous

Published in *Traffic Safety* v68 n12 p16-7, 36 (Dec 1968)

The National Safety Council's new computer system will process accident data of all kinds to define patterns, indicate probable relationships and isolate out-of-norm situations in groups of accidents. A new probing technique called "tree search" provides for the study of accident data to almost any depth. Such detailed specific reports can serve as impor-

tant guidelines in the search for better accident countermeasures.

Search terms: Accident data; Computers; Information systems; Accident analysis; Accident factors

#### HS-800 154 Fld. 1/3; 3/0; 5/0

#### A STUDY OF SEVERE VEHICULAR ACCIDENTS. PHASE 2. FINAL REPORT

by Fleming L. Jolley; Paul H. Wright  
Georgia Inst. of Tech., Atlanta.  
School of Civil Engineering  
Feb 1969 186 p  
Contract FH-11-6797

Results are given of a study of 20 severe automobile collisions in Atlanta, analyzed by a medico-engineering team. Research included an epidemiological study of factors causing accidents as well as a study of the secondary collisions to establish the kinematics of the occupants and to identify the factors causing injury and death. A pilot study preceding this work described the training of the medico-engineering team. This report describes selection criteria for the accidents studied and the methods of study used. Recommendations for accident prevention and injury prevention and treatment are included. Attempts are made to find the probable cause of each accident.

Search terms: Defective vehicles; Case reports\*; Collisions (accidents); Atlanta\*; Accident analysis; Accident causes; Accident investigation; Accident prevention; Secondary collisions; Kinematics; Injury factors; Fatalities; Costs\*; Damage; Injury prevention; Medical treatment; Human factors engineering; Accident severity; Environmental factors; Hazards; Driver behavior; Accident location; Drinking drivers; Psychological factors

AVAILABILITY: Corporate author

#### HS-005 796 Fld. 3/3; 3/1; 1/3

#### FATAL MOTORCYCLE ACCIDENTS

by J. Wallace Graham

Published in *Journal of Forensic Sciences* v14 n1 p79-86 (Jan 1969)

10 refs

This paper deals with the age, sex, and distribution of injuries in 352 motorcycle operator and/or passenger fatalities which occurred in Los Angeles County, California, from 1962 to 1966. The type of accident (collision or noncollision) and the extent of responsibility of the motorcycle operator is also noted. In addition an evaluation is made of the extent to which motorcycle operators having significant blood alcohol concentrations are responsible for accidents.

Search terms: Los Angeles County\*; Motorcycle accidents; Fatalities; Blood alcohol levels\*; Age factor in accidents; Sex factor in accidents; Accident rates; Passengers; Accident responsibility; Single vehicle accidents; Collisions (accidents); Driver intoxication; Head injuries; Spinal injuries; Arm injuries; Abdomen injuries; Leg injuries; Drinking drivers

#### HS-005 808 Fld. 3/9; 1/3; 3/1

#### MEDICAL IMPAIRMENT AND HIGHWAY CRASHES

by Julian A. Waller

Published in *Journal of the American Medical Association* v208 n12 p2293-6 (23 Jun 1969) 22 refs.

Presented to American Medical Association Automotive Safety Symposium, Washington, D. C., Sept. 13, 1968.

Impairment to drivers or pedestrians from chronic medical problems may be a contributing factor in 15 to 25% of crashes. In addition, alcoholism is a factor in a third of fatal crashes. Drivers with medical problems should be reported to licensing authorities, but no more than a quarter of these drivers should have their licenses revoked. For the remainder, driving and walking tasks should be simplified. Energy absorption capacity of vehicles and highways should be improved and emergency health services upgraded.

Search terms: Alcoholism; Drinking drivers; Driver intoxication; Energy absorption; Driver physical fitness; Pedestrian characteristics; Driver license revocation;



## 1/3 Investigation &

### Records (Cont.)

HS-005-808 (Cont.)

Driving tasks; Walking\*; Accident factors; Handicapped drivers; Medical conditions; Fatalities; Emergency medical services; Physicians.

HS-005 825 Fld. 1/3

#### MODERN METHODS OF ACCIDENT RECORDING AND ANALYSIS IN A RURAL COUNTY

by T. H. Shillam

Published in *The Surveyor and Municipal Engineer* v129 n3894 p27-29 (21 Jan 1967)

In order to identify specific accident problems and to be able to correct them, an efficient system of accident recording and analysis is required. The purpose of this paper is to describe the method in use in East Suffolk, and to show what can be achieved in a small county with limited resources.

Search terms: Accident records; Great Britain\*; Accident analysis; Data processing; Rural areas; Accident data; Accident location

HS-005 826 Fld. 1/3; 3/4; 3/9

#### AGE AND AUTOMOTIVE ACCIDENTS

by Donald P. Kent; Geraldine B. Novotny

Published in *Geriatrics* v16 n6 p271-7 (Jun 1961) 15 refs

Data by age groups show that the accident index for drivers between 60 and 69 is well below the national average, while that for those above 70 equals the national average. Drivers below the age of 20 have the poorest record, and drivers up to 30 have a poorer record than those over 75 according to National Safety Council figures. A similar pattern is reported by Connecticut data. Fatal accidents per miles driven and age of driver are discussed briefly. Periodic examination and other measures designed to decrease accidents are appropriate for all age groups, although attention in this regard has been focused on the elderly driver.

Search terms: Aged drivers\*; Age factor in accidents; Connecticut\*; Driver miles\*; Fatalities; Accident data; Driver physical fitness; Vision

HS-005 837 Fld. 3/4; 1/3; 3/1

#### AUTOMOBILE ACCIDENTS, SUICIDE AND UNCONSCIOUS MOTIVATION

by Melvin L. Selzer; Charles E. Payne

Published in *American Journal of Psychiatry* v119 n3 p237-40 (Sep 1962) 15 refs

This investigation using 60 male psychiatric patients points toward the possibility that unconscious self-destructive impulses, sometimes abetted by alcohol, are a major although covert factor in the etiology of certain automobile accidents.

Search terms: Mental illness; Suicide\*; Alcoholism; Accident causes; Psychological factors; Accident rates

HS-005 863 Fld. 1/3; 3/3

#### CASUALTY ACCIDENTS INVOLVING BICYCLES—STATE OF VICTORIA, AUSTRALIA 1965 AND 1967

by Anne Raymond

Published in *Australian Road Research* v3 n7 p49-71 (Sep 1968) 8 refs

The number of bicycle accidents, severity of accident, age of rider, environmental conditions, involvement of drinking drivers, role of lights or lack of lights on bicycles, and other accident factors were analyzed. Some 93% were found to be collisions with other vehicles; 96% were urban accidents. School-age children were 62% of the victims, accident risk was greater in darkness, the lights required on bicycles are insufficient, and many bicycle riders were found to be careless.

Search terms: Bicycle accidents\*; Fatalities; Injuries; Australia\*; Accident causes; Accident factors; Accident types; Drinking drivers; Lighting equipment; Defective vehicles; Urban accidents; Children; Accident risks; Careless driving; Night driving; Accident severity; Environmental factors; Age factor

in accidents; Collisions (accidents)

HS-005 864 Fld. 1/3; 4/7

#### THE CONNECTICUT CRACKDOWN ON SPEEDING: TIME-SERIES DATA IN QUASI-EXPERIMENTAL ANALYSIS

by Donald T. Campbell; H. Laurence Ross

Published in *Law & Society Review* v3 n1 p33-53 (Aug 1968)

Contract 3-20-001

In late 1955, Connecticut began a policy of mandatory driver license suspension for thirty days for a first speeding offense, 60 days suspension for second offense, and indefinite suspension for a third offense. In six months more than 5,000 drivers had their licenses suspended and traffic fatalities had declined 15%. Fatalities began to rise again, however, about to the previous level. The validity of the results claimed for the speeding crackdown is examined. It is concluded that the crackdown was a substantial enforcement effort, somewhat mitigated in practice by courts and police, but that it emphasized only one factor in the accident problem.

Search terms: Traffic law enforcement; Driver license suspension; High speed; Connecticut\*; Fatalities; Courts; Police; Accident factors; Accident causes; Statistical analysis; Time series analysis\*

HS-005 865 Fld. 1/3; 5/10

#### DAYLIGHT "RUNNING LIGHTS" REDUCE ACCIDENTS

by Edmund J. Cantilli

Published in *Traffic Engineering* v39 n5 p52-54, 56-7 (Feb 1969)

An extensive test of parking lights as daytime running lights has brought about a reduction in accidents to Port of New York Authority vehicles. Accident rates and accident severity for all types of vehicles are compared in graph form. Rear-end, angle, backing, head on, and pedestrian accidents were all reduced. The sideswipe accident rate increased.

Search terms: Accident severity; Port of New York Authority\*;

### 1/3 Investigation & Records (Cont.)

HS-005-865 (Cont.)

Accident prevention; Daytime headlight operation\*; Accident rates; Rear end collisions; Side impact collisions; Head on collisions; Pedestrian accidents; Parking lights\*

HS-005 873 Fld. 3/6; 1/3; 5/9; 3/5

### THE NEED FOR TRAFFIC SAFETY LEGISLATION

by James E. Bassett

Published in *Police* v9 n5 p38-41 (May-June 1965)

Presented to American Association for Automotive Medicine Conference, Oct. 1964.

The accident problem in Kentucky is outlined. The Driver Limitation Program is explained; medical advice will be sought concerning the licensing of special risk drivers, including the physically handicapped and those with chronic conditions and mental problems. A program for re-examining all drivers every four years needs to be developed, annual motor vehicle inspection made mandatory, driver education in high schools made available to all students, and the quality of traffic courts improved.

Search terms: Kentucky\*; Traffic safety programs; Driver physical fitness; Motor vehicle inspection; Driver education; Driver licensing; Accident prevention; Traffic courts; Handicapped drivers; Mental illness; Driver license examination; Medical advisory boards\*; High school driving courses\*; Traffic law enforcement; Accident rates

HS-005 897 Fld. 1/3; 3/0

### FATAL MOTOR VEHICLE ACCI- DENT STUDY

Medical Lab. (10th), New York, APO 09180

Sep 1967 44p 11 refs

Includes covering letter to Commanders of USAREUR major commands and assigned units and activities, and discussion of film "For

Those Who Drink".

Drivers involved in 540 fatal motor accidents were compared to matched control subjects. Control group were found to have significantly fewer numbers with uncorrected defective vision and histories suggestive of behavior or personality disorder than the group involved in fatalities. Two-thirds of the autopsied drivers showed blood alcohol. Carbon monoxide was found in one-third of the specimens. The majority of the fatal accidents occurred in two-lane, undivided highways under good driving conditions and without use of seat belts.

Search terms: Drinking drivers; Fatalities; Vision disorders\*; Human behavior; Alcoholic beverages; Carbon monoxide; Autopsies; Seat belt usage\*; Blood analysis\*; Drugs; Synergism\*; Accident data; Psychological tests; Questionnaires\*; Blood alcohol levels\*; Driver intoxication; Motor vehicle accidents; Problem drivers

AVAILABILITY: CFSTI as AD-691 358

HS-005 914 Fld. 5/0; 1/3

### FIELD ACCIDENT RESEARCH

by Wilton D. Nelson; Richard A. Wilson

General Motors Proving Ground, Milford, Mich.

7p

General Motors began a program of accident research and analysis which gathered information from many sources. The lack of common language and reporting uniformity of accident data have become areas of concern. Findings from a study of 2,500 1968 model cars damaged in collisions are also discussed.

Search Terms: Data acquisition; Accident research; Accident analysis; Accident data; Accident reports; Collisions (accidents)

AVAILABILITY: Paper 11 in its PROC. OF AUTOMOTIVE SAFETY SEMINAR, 11-12 Jul 1968 (HS-005 901)

HS-005 929 Fld. 5/0; 1/3

### TRAFFIC CONFLICT CHARACTERISTICS

by Joseph I. Harris; Stuart R. Perkins  
General Motors Research Labs., Warren, Mich.

7p

Traffic conflicts, defined as any potential accident situation, have been defined for specific accident patterns at intersections, and a method has been devised for surveying an intersection in two 12-hour observations. The initial causes of the incidents are revealed. Essentially traffic conflicts are defined by the occurrence of evasive actions, such as braking or weaving, which are forced on a driver by impending accident or traffic violation situations.

Search terms: Accident risks; Hazards; Intersections; Braking; Weaving traffic; Traffic violations; Traffic data analysis; Accident analysis

AVAILABILITY: Paper 26 in General Motors Proving Ground, PROC. OF AUTOMOTIVE SAFETY SEMINAR, 11-12 July 1968 (HS 005 901)

HS-005 940 Fld. 1/3; 2/9

### A PHILOSOPHY FOR ACCIDENT PREVENTION

by Edmund J. Cantilli

Published in *Traffic Engineering* v35 n8 p21, 44, 46, 48 (May 1965)

Suggests that elimination of traffic accidents, rather than mere reduction, is an achievable goal. The total elimination of accidents is equivalent to a complete removal of vehicle control from the driver. The goal should be automated highways with programmed destinations and travel patterns to be punched into a control board. A logical progression towards achievement of this goal is outlined, beginning with traffic control methods available now.

Search terms: Accident prevention; Automatically guided automobiles; Highway safety; Electronic traffic control; Automatic highways; Automatic control; Motor vehicle control; Traffic accidents; Travel patterns; Traffic engineering

### 1/3 Investigation &

#### Records (Cont.)

##### HS-005 941 Fld. 1/3 RECONSTRUCTION OF ACCIDENTS

by J. Stannard Baker

Published in *Traffic Digest and Review* v17 n3 p9-16 (Mar 1969)

Attempts to find from available information how and why accidents happen. Object is to determine speeds, position on the road, evasive action, perception delays and communication adequacy. Particularly important in determining negligence.

Search terms: Accident reconstruction\*; Accident investigation; Accident causes; Accident data; Negligence\*; Speed; Skidmarks\*

##### HS-005 954 Fld. 2/4; 1/3

##### REDUCTION OF ACCIDENTS BY PAVEMENT GROOVING

by John L. Beaton; Ernest Zube; John Skog

Published in *HRB Special Report* n101 p110-25 (1969) 6 refs

Report no. NAS-NRC-Pub-1460; HRB-SR-101

Paper in Proceedings of the HRB Western Summer Meeting cosponsored by the Colorado Dept. of Highways, Denver, Aug 12-13, 1968.

Providing and maintaining a skid-resistant surface on concrete pavements is discussed. Studies of the effect of grooving the pavement to reduce wet weather accidents were conducted. Results show that pavement grooving parallel to the centerline will reduce the wet weather accident rate.

Search terms: Accident prevention; Grooving\*; Skid resistance; Wet skidding; Accident rates; Concrete pavements; California\*; Wet road conditions; Pavement skidding characteristics; Friction; Accident rates

##### HS-005 962 Fld. 3/1; 1/3

##### THE ROLE OF ALCOHOL IN FATAL TRAFFIC "ACCIDENTS"

by Horace E. Campbell

Published in *Traffic Safety* v65 n3 p24-6, 36-7

Combined data is presented proving that the drinking driver is the largest part of our traffic death and serious injury problem. Discusses legislation concerning drinking and driving in Norway and Sweden. Suggests that: implied consent legislation be adopted by every state along with special legislation providing medical or psychiatric treatment for the problem drinker; since blood alcohol levels of 0.05 per cent produce impaired driving behavior, the statutory level should be below this point; and the problem should be recognized more fully and handled in a rational manner.

Search terms: Drinking drivers; Fatalities; Norway\*; Sweden\*; Legislation; Blood alcohol levels\*; Accident causes; Injuries; Injury prevention; Injury severity; Accident data; Driver intoxication; Traffic accidents; Problem drivers

##### HS-810 083 Fld. 1/3; 2/0; 3/0; 5/0

##### MYTHS AND MISCONCEPTIONS IN TRAFFIC SAFETY

by William E. Tarrant

National Highway Safety Bureau, Washington, D.C.

Published in *Robot* n43 p2-7 (Apr-May 1969)

Author recommends meeting immediate need of traffic safety with action programs based on intuition until research can provide scientific evidence for specific programs. The concepts of "accident prevention," deviant drinkers and accidents, driver behavior, pedestrian control, safety posters, and driver education are discussed, with emphasis regarding misconceptions. The contribution to accidents by vehicle design and highway design is mentioned. The importance of reliable investigation and reporting of all the causes of accidents is pointed out.

Search terms: Social drinking\*; Safety programs; Accident prevention; Alcoholism; Drinking drivers; Pedestrian intoxication; Safety propaganda; Pedestrian safety; Driver education; Highway safety;

Motor vehicle safety; Accident causes; Accident reports; Accident investigation; Blood alcohol levels\*; Traffic safety; Automobile design; Highway design

##### HS-810 085 Fld. 4/7; 1/3

##### A SYSTEMS APPROACH TO SAFE MOTORING

by Catherine D. August

National Highway Safety Bureau, Washington, D.C.

1968 19p

Application of systems analysis to the highway crash problem is still in its infancy and cannot be utilized to its full potential without better cost and accident data. Steps involved would be analysis of the crash problem and possible solutions, development of mathematical models to determine effectiveness of solutions, and decision making based on cost effectiveness.

Search terms: Systems analysis; Highway safety; Driver-vehicle interface; Mathematical models; Decision making\*; Motor vehicle accidents; Accident research; Costs; Crash phase; Pre-crash phase; Post-crash phase; Safety standards; Accident data

AVAILABILITY: Corporate author

##### HS-005 983 Fld. 1/3; 1/4; 5/2; 5/20

##### MOTOR CARRIER ACCIDENT INVESTIGATION. JULIO M. PUENTE-ACCIDENT-MAY 30, 1967-NEAR DWIGHT, ILLINOIS

Bureau of Motor Carrier Safety, Washington, D.C.

1967 7p

Report no. 67-2

One fatality, 19 injuries, and \$1,600 property damage resulted when a pickup truck overturned. The accident was attributed to tire failure resulting from underinflation.

Search terms: Fatalities; Injuries; Tire failures\*; Accident causes; Property damage; Accident location; Truck accidents; Inflation pressure; Accident investigation

### 1/3 Investigation &

#### Records (Cont.)

HS-005 984 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. C & S EXPRESS INC.—ACCIDENT—JUNE 13, 1967—UPPER MARLBORO, MD.**

Bureau of Motor Carrier Safety, Washington, D.C.

1967 11p

Report no. 67-3

One fatality and approximately \$8,000 property damage resulted when a tractor-semitrailer failed to stop behind halted traffic. The accident was attributed to brake failure.

Search terms: Tractor-semitrailers\*; Fatalities; Accident causes; Brake failures\*; Property damage; Accident location; Truck accidents; Accident investigation; C & S Express, Inc.\*

HS-005 985 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. PETROLEUM TRANSIT CORPORATION OF SOUTH CAROLINA—ACCIDENT—JUNE 23, 1967—HARDEEVILLE, S.C.**

Bureau of Motor Carrier Safety, Washington, D.C.

1967 9p

Report no. 67-4

Ten fatalities, injury to one, and approximately \$11,000 property damage resulted from an intersection collision involving a tractor-semitrailer and a station wagon. The accident was attributed to the driver of the station wagon who failed to heed the "stop" sign. Excessive speed of the truck was a contributing factor.

Search terms: Fatalities; Injuries; Property damage; Accident causes; Accident location; Tractor-semitrailers\*; Automobiles; Unsafe speed; Driver license suspension; Violations; Stop signs\*; Intersections; Side impact collisions; High speed; Accident investigation; Petroleum Transit Corp. of South Carolina\*

HS-005 986 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT**

**INVESTIGATION. AERO TRUCKING, INC.—ACCIDENT—JUNE 18, 1967—LUKE, MD.**

Bureau of Motor Carrier Safety, Washington, D.C.

1967 9p

Report no. 67-5

Three fatalities, injuries to five, and approximately \$11,300 property damage resulted when a tractor-semitrailer ran out of control down a mountain grade and collided with an automobile. The accident was attributed to the truck driver who disregarded numerous warning and instructional signs.

Search terms: Fatalities; Injuries; Property damage; Tractor-semitrailers\*; Accident causes; Accident location; Traffic signs; Unsafe speed; Driver performance; Warning systems; Accident investigation; Collisions (accidents); Careless driving; Truck drivers; Truck accidents; Motor vehicle control; Road grades; Aero Trucking, Inc.\*

HS-005 987 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. BUTLER & COMPANY, INC.—ACCIDENT—JUNE 25, 1967—NEAR EUPORA, MISS.**

Bureau of Motor Carrier Safety, Washington, D.C.

1967 9p

Report no. 67-6

Five fatalities, injuries to three, approximately \$5,500 property damage resulted when a tractor-semitrailer failed to stop behind halted traffic. The accident was attributed to the truck driver who had loss of vision in one eye and a poor driving record.

Search terms: Fatalities; Injuries; Property damage; Accident causes; Accident location; Tractor-semitrailers\*; Driver records; Vision disorders\*; Driver license suspension; Head on collisions; Truck accidents; Truck drivers; Accident investigation; Butler & Co., Inc.\*

HS-005 988 Fld. 1/3; 1/4; 5/2

**MOTOR CARRIER ACCIDENT**

**INVESTIGATION. GRAY LINE SIGHTSEEING TOURS, INC.—ACCIDENTS—JULY 31, 1967—STUART, FLA.**

Bureau of Motor Carrier Safety, Washington, D.C.

1967 7p

Report no. 67-7

Injury to 21 and approximately \$35,000 property damage resulted from a bus's overturning after skidding out of control. The accident was attributed to unsafe speed for driving conditions which included wet road conditions and worn tires.

Search terms: Injuries; Property damage; Buses (vehicles); Wet road conditions; Unsafe speed; Tire-road conditions; Accident causes; Accident location; Accident investigation; Single vehicle accidents; Bus accidents\*; Skidding accidents; Tire wear; Gray Line Sightseeing Tours, Inc.\*

HS-005 989 Fld. 1/3; 1/4; 5/2; 5/22

**MOTOR CARRIER ACCIDENT INVESTIGATION. SAFEWAY TRAILS, INC. AND CITIES SERVICE OIL COMPANY—ACCIDENT—SEPT. 10, 1967—NEW JERSEY TURNPIKE**

Bureau of Motor Carrier Safety, Washington, D.C.

1967 9p

Report no. 67-8

One fatality, injury to eight, and \$44,000 property damage resulted when a bus collided with the rear of a disabled tractor-semitrailer. The accident was attributed to the operation of a bus on a high speed highway by a driver who was apparently inattentive, combined with the towing of an inadequately lighted disabled vehicle, and the failure to remove that disabled vehicle at the nearest exit.

Search terms: Fatalities; Injuries; Property damage; Buses (vehicles); Tractor-semitrailers\*; High speed; Driver performance; Disabled vehicles\*; Towing\*; Debris removal; Signal lights; Accident investigation; Accident causes; Accident location; Bus accidents\*; Truck accidents; Rear end collisions; Safeway Trails, Inc.\* Cities Service Oil Co.\*

### 1/3 Investigation &

### Records (Cont.)

HS-005 990 Fld. 1/3; 1/4; 5/2; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. DOHRN TRANSFER COMPANY—ACCIDENT—SEPT. 27, 1967—JAMESTOWN, INDIANA**

Bureau of Motor Carrier Safety, Washington, D.C.

1967 7p

Report no. 67-9

Three fatalities, injury to one, and approximately \$29,000 property damage resulted when a tractor-semitrailer full-trailer combination collided with a police car which was stopped in a traffic lane at the scene of another accident. The accident was attributed to the bad judgment on the part of the truck driver in no approaching flashing warning lights with his vehicle under complete control.

Search terms: Fatalities; Injuries; Property damage; Multitrailers\*; Police cars\*; Driver performance; Warning systems; Signal lights; Accident location; Accident investigation; Accident causes; Flashing systems; Truck accidents; Rear end collisions; Truck drivers; Dohrn Transfer Co.\*

HS-005 991 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. ROADWAY EXPRESS, INC.—LOAD SHIFT KILLS TRUCK DRIVER—ACCIDENT—OCT. 6, 1967—HORSE CAVE, KENTUCKY**

Bureau of Motor Carrier Safety, Washington, D.C.

1967 7p

Report no. 67-10

One fatality, injury to four, and approximately \$6,000 property damage resulted from the shifting of a load which crushed the cab of the tractor-trailer and the top of an automobile stopped at an intersection. The accident was attributed to improper loading.

Search terms: Fatalities; Injuries; Property damage; Load shifting; Tractor-semitrailers\*; Accident investigation; Accident location; Accident causes; Negligence\*;

Truck accidents; Automobile accidents; Roadway Express, Inc.\*

HS-005 992 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. INSURED TRANSPORTERS, INC.—ACCIDENT—OCT. 25, 1967—TOWER CITY, N.D.**

Bureau of Motor Carrier Safety, Washington, D.C.

1967 6p

Report no. 67-11

Two fatalities, five injuries, and \$21,000 property damage resulted from collision between a tractor, two other vehicles, and a camper bus. A fire was caused. The truck-tractor was towing two vehicles. Truck driver had a record of inability to keep awake and had driven a long tour of duty at high speed.

Search terms: Truck accidents; Accident causes; Accident investigation; Truck drivers; Sleep\*; Driver fatigue; Bus accidents\*; Towing\*; Collisions (accidents); Fires\*; Fatalities; Injuries; Property damage; High speed; Truck tractors; Work time standards\*; Insured Transporters, Inc.\*

HS-005 993 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. THUNDERBIRD FREIGHT LINES, INC.—ACCIDENT—OCT 3, 1967—BLYTHE, CALIFORNIA**

Bureau of Motor Carrier Safety, Washington, D.C.

1967 9p

Report no. 67-12

A tractor-semitrailer was involved in a single vehicle accident resulting in the spillage of about 85 gallons of parathion on the highway. Three persons exposed to this poison had to be hospitalized and the road had to be closed for 18 hours for clean-up and decontamination. Costs of cargo loss and decontamination were about \$35,000. Accident was caused by separation of the front axle because of failure to secure load against shifting.

Search terms: Tractor-semitrailers\*; Single vehicle accidents; Property damage; Accident causes; Accident investigation; Load shifting; Debris removal; Hazardous materials\*; Insecticides\*; Health hazards; Truck accidents; Parathion\*; Thunderbird Freight Lines, Inc.\*

HS-005 994 Fld. 1/3; 1/4; 5/2; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. RICHARDSON TRANSFER AND STORAGE CO., INC.—ACCIDENT—NOVEMBER 21, 1967—CUMBERLAND, INDIANA**

Bureau of Motor Carrier Safety, Washington, D.C.

1967 11p

Report no. 67-13

Six fatalities, injuries to 13, and approximately \$15,000 property damage resulted when a tractor-semitrailer collided with the rear of an automobile stopped behind a school bus. The accident was attributed to the truck driver whose operation of the vehicle was considered reckless and whose performance may have been impaired by fatigue.

Search terms: Fatalities; Injuries; Property damage; Accident causes; Accident location; Tractor-semitrailers\*; School buses; Reckless driving; Driver fatigue; Driver records; Rear end collisions; Automobile accidents; Bus accidents\*; Truck drivers; Richardson Transfer and Storage Co., Inc.\*

HS-005 995 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. NORTH-EASTERN TRUCKING COMPANY—ACCIDENT—DECEMBER 13, 1967—SMITHFIELD, NORTH CAROLINA**

Bureau of Motor Carrier Safety, Washington, D.C.

1967 7p

Report no. 67-14

One fatality, injury to six, and approximately \$1500 property damage resulted when a tractor-semitrailer collided with the rear of a stopped automobile on a fog and

### 1/3 Investigation &

#### Records (Cont.)

HS-005-995 (Cont.)

smoke covered highway. The accident was attributed to the driver who was operating the truck at a speed too fast for existing conditions. This driver's record indicated flagrant disregard of traffic rules and regulations.

Search terms: Fatalities; Injuries; Property damage; Tractor-semitrailers\*; Accident cause; Accident location; Unsafe speed; Driver records; Fog; Smoke\*; Visibility; Rear end collisions; Automobile accidents; High speed; Driving conditions; Traffic violations; Truck accidents; Northeastern Trucking Co.\*

HS-005 996 Fld. 1/3; 1/4; 5/2

**MOTOR CARRIER ACCIDENT INVESTIGATION. CARLSBAD CAVERN COACHES; WESTERN GREYHOUND LINES; EASTERN GREYHOUND LINES; MIDWEST BUSLINES, INC.—ACCIDENTS—DECEMBER 16, 1967-JANUARY 9, 1968**

Bureau of Motor Carrier Safety, Washington, D.C.

1968 9p

Report no. 68-1

Four fatalities, injury to 37, and approximately \$88,000 property damage resulted from four bus-skidding accidents which occurred between December 16, 1967, and January 9, 1968. In each case the bus was the only vehicle involved, and loss of control of the vehicle occurred on a slippery or icy road surface which was general throughout considerable area. The accidents were attributed to the failure of the drivers to handle their vehicles with due regard for the severe operating conditions.

Search terms: Fatalities; Injuries; Property damage; Icy road conditions; Accident causes; Accident location; Driver performance; Unsafe speed; Single vehicle accidents; Accident investigation; Skidding accidents; Bus accidents\*; Motor vehicle control; Driving conditions; High speed; Wet road con-

ditions; Carlsbad Cavern Coaches\*; Western Greyhound Lines\*; Eastern Greyhound Lines\*; Midwest Buses, Inc.\*

HS-005 997 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. LOU-VERN CORP. AND DIAMOND BROKERAGE COMPANY, INC.—ACCIDENT—FEBRUARY 9, 1968—GREENWOOD, SOUTH CAROLINA**

Bureau of Motor Carrier Safety, Washington, D.C.

1968 13p

Report no. 68-2

One fatality, injury to one, and approximately \$33,000 property damage resulted when two tractor-semitrailers collided. One of the vehicles was parked on the wrong side of a two-lane highway. The accident was attributed to the drivers. One was unqualified to drive a truck and the other was inattentive.

Search terms: Fatalities; Injuries; Property damage; Tractor-semitrailers\*; Accident causes; Accident location; Two lane highways; Accident records; Driver license suspension; Emotions; Driver performance; Driver records; Truck accidents; Careless driving; Side impact collisions; Stress (psychology); Lou-Vern Corp.\*; Diamond Brokerage Co. Inc.\*

HS-005 998 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. FREEPORT TRANSPORT, INC.—ACCIDENT—FEBRUARY 1, 1968—BAIRDFORD, PENNSYLVANIA**

Bureau of Motor Carrier Safety, Washington, D.C.

1968 7p

Report no. 68-3

One fatality, injury to one, and approximately \$7,000 property damage resulted when a tractor-semitrailer ran off the roadway and plunged down an embankment. The accident was attributed to reckless driving by an intoxicated truck driver.

Search terms: Fatalities; Injuries; Property damage; Accident investigation; Accident causes; Accident location; Tractor-semitrailers\*; Driver intoxication; Driver records; Single vehicle accidents; Truck accidents; Reckless driving; Truck drivers; Drinking drivers; Freeport Transport, Inc.\*

HS-005 999 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. EDWIN H. FOWLKES AND HERBERT LUMBER COMPANY—ACCIDENT—FEBRUARY 3, 1968—OROGRADE, NEW MEXICO**

Bureau of Motor Carrier Safety, Washington, D.C.

1968 11p

Report no. 68-4

One fatality, injury to three, and approximately \$30,000 property damage resulted when one tractor-trailer crossed the center line of a two-lane roadway and collided with another tractor-trailer. The accident was attributed to fatigue in one driver and failure to take evasive action by the other driver who had been drinking.

Search terms: Fatalities; Injuries; Property damage; Tractor-trailers\*; Two lane highways; Accident investigation; Accident causes; Accident location; Driver fatigue; Drinking drivers; Driver performance; Driver records; Truck accidents; Driver intoxication; Careless driving; Collisions (accidents); Herbert Lumber Co.\*

HS-006 000 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. EAZOR EXPRESS, INC.—ACCIDENT—APRIL 9, 1968—RAYLAND, OHIO**

Bureau of Motor Carrier Safety, Washington, D.C.

1968 11p

Report no. 68-5

Injury to one and approximately \$105,000 property damage resulted when a tractor-semitrailer collided with the overhead structure of a bridge, causing it to collapse. A following tractor-trailer fell into the



### 1/3 Investigation &

#### Records (Cont.)

##### HS-006-000 (Cont.)

opening in the bridge floor. The accident was attributed to negligent driving of an overheight-overweight vehicle without the required permit from the State of Ohio.

Search terms: Injuries; Property damage; Tractor-semitrailers\*; Bridges (structures); Negligence\*; Size limits; Weight limits; Accident investigation; Accident causes; Accident location; Driver records; Truck accidents; Bridge surfaces; Height\*; Eazor Express, Inc.\*

##### HS-006 001 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. ALFRED A. MERCER—ACCIDENT—MARCH 16, 1968—BENSON, N.C.**

Bureau of Motor Carrier Safety, Washington, D.C.

1968 5p  
Report no. 68-6

Six fatalities, injury to one, and approximately \$22,000 property damage resulted from a tractor-trailer's overturning onto an approaching vehicle. The accident was attributed to disregard of hours of service regulations. The truck driver apparently fell asleep.

Search terms: Fatalities; Injuries; Property damage; Tractor-trailers\*; Accident investigation; Accident causes; Accident location; Driver fatigue; Driver restrictions; Truck accidents; Collisions (accidents); Work time standards\*; Sleep\*; Truck drivers

##### HS-006 002 Fld. 1/3; 1/4; 5/6; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. TRANSIT HOMES, INC.—TRUCK DRIVER ASPHYXIATED—DEFECTIVE EXHAUST SYSTEM ACCIDENT—OCT. 15, 1968—DE BORGIA, MONT.**

Bureau of Motor Carrier Safety, Washington, D.C.

1968 5p  
Report no. 68-7

One fatality resulted from driver

asphyxiation from a defective exhaust system. Death was attributed to carbon monoxide poisoning.

Search terms: Fatalities; Carbon monoxide; Defective vehicles; Exhaust systems; Exhaust emissions; Accident causes; Accident investigation; Truck drivers; Asphyxia\*; Transit Homes, Inc.\*

##### HS-006 003 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. NORTH AMERICAN VAN LINES, INC.—ACCIDENT—AUGUST 10, 1968—LIBERAL, KANS.**

Bureau of Motor Carrier Safety, Washington, D.C.

1968 10p  
Report no. 68-8

Seven fatalities, injury to two, and approximately \$30,000 property damages resulted from the collision of a tractor-trailer which had skidded across the opposing lane of traffic, involving two automobiles. The accident was attributed to unsafe speed for rain-slick pavements and smooth tires on tractor.

Search terms: Fatalities; Injuries; Property damage; Tractor-trailers\*; Accident causes; Accident investigation; Accident location; Unsafe speed; Wet road conditions; Tire-road conditions; Skidding accidents; Head on collisions; Side impact collisions; Tire wear; Automobile accidents; Truck accidents; North American Van Lines, Inc.\*

##### HS-006 004 Fld. 1/3; 1/4; 5/2

**MOTOR CARRIER ACCIDENT INVESTIGATION. OKLAHOMA TRANSPORTATION CO. AND KANSAS, OKLAHOMA AND GULF RAILWAY—ACCIDENT—OCTOBER 9, 1968—CALVIN, OKLA.**

Bureau of Motor Carrier Safety, Washington, D.C.

1968 7p  
Report no. 68-9

Injuries to 44 and \$25,000 property damage resulted when a bus was struck by a train. Accident was attributed to the bus driver who entered the crossing in disregard of warning signals.

Search terms: Injuries; Property damage; Railroads; Railroad grade crossings\*; Accident investigation; Accident location; Accident causes; Driver records; Signal lights; Driver performance; Bus accidents\*; Side impact collisions; Careless driving; Warning systems; Bus drivers; Oklahoma Transportation Co.\*; Kansas, Oklahoma and Gulf Railway\*

##### HS-006 005 Fld. 1/3; 1/4; 5/2; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. SUBURBAN MOTOR FREIGHT, INC.—ACCIDENT—SEPTEMBER 27, 1968—MONTPELIER, OHIO**

Bureau of Motor Carrier Safety, Washington, D.C.

1968 9p  
Report no. 68-10

One fatality, injury to 17, and approximately \$10,000 property damage resulted when a tractor-semitrailer collided with the rear end of a school bus. The truck driver was a diabetic requiring one insulin injection per day. His vision was corrected to normal with glasses. The accident was attributed to lack of alertness due in some manner to change in his physical condition.

Search terms: Fatalities; Injuries; Property damage; Tractor-trailers\*; School buses; Diabetes mellitus\*; Driver physical fitness; Accident location; Accident causes; Accident investigation; Rear end collisions; Truck accidents; Suburban Motor Freight, Inc.\*

##### HS-006 006 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. MID-CONTINENT FREIGHT LINES, INC.—ACCIDENT—OCTOBER 20, 1968—KANSAS CITY, MO.**

Bureau of Motor Carrier Safety, Washington, D.C.

1968 11p  
Report no. 68-11

Two fatalities and \$1,000 property damage resulted from accident in which an auto struck a tractor-semitrailer broadside in an intersection. Truck driver had been drinking, went through a stopsign,

### 1/3 Investigation &

#### HS-006-006 (Cont.) Records (Cont.)

and entered intersection at 60 miles per hour. Truck driver had exchanged duties with the assigned driver, was carrying a female passenger. Inadequate supervision of truck driver is criticized.

Search terms: Truck drivers; Reckless driving; Stop signs\*; Intersections; High speed; Unsafe speed; Fatalities; Property damage; Tractor-semitrailers\*; Side impact collisions; Truck accidents; Automobile accidents; Accident causes; Accident investigation; Drinking drivers; Driver intoxication; Work time standards\*; Mid-Continent Freight Lines, Inc.\*

#### HS-006 007 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. HOFFERBER TRUCK LINE, INC.—ACCIDENT OF NOVEMBER 23, 1968—ADMIRE, KANSAS**

Bureau of Motor Carrier Safety, Washington, D.C.

1968 9p  
Report no. 68-12

One fatality and \$25,000 property damage resulted from accident in which tractor-semitrailer ran off road at high speed and into a creek. Driver apparently went to sleep, the result of fatigue. Driver had objected to making another trip without rest but was ordered to do so.

Search terms: Fatalities; Truck accidents; Property damage; Single vehicle accidents; High speed; Sleep\*; Driver fatigue; Accident causes; Accident investigation; Tractor-semitrailers\*; Work time standards\*; Hofferber Truck Line, Inc.\*

#### HS-006 008 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. GROSS & SONS TRANSPORT COMPANY—ACCIDENT OF JANUARY 24, 1969—JEROME, IDAHO**

Bureau of Motor Carrier Safety, Washington, D.C.

1969 9p  
Report no. 69-1

One fatality and \$30,000 property damage resulted from accident in which tractor-semitrailer ran off road and overturned. Truck driver had been on duty an excessive time and evidently went to sleep. He had also been drinking heavily during the trip.

Search terms: Fatalities; Property damage; Truck drivers; Truck accidents; Sleep\*; Driver intoxication; Drinking drivers; Tractor-semitrailers\*; Work time standards; Single vehicle accidents; Rollover accidents; Accident causes; Accident investigation; Driver fatigue; Gross & Sons Transport Co.\*

#### HS-006 009 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. TWO VEHICLE SEPARATION ACCIDENTS. KOWALSKY EXPRESS SERVICE—JANUARY 14, 1969—ELIZABETH, N.J.—AIR PRODUCTS AND CHEMICALS, INC.—FEBRUARY 7, 1969—WILMINGTON, DELAWARE**

Bureau of Motor Carrier Safety, Washington, D.C.

1969 11p  
Report No. 69-2

Two accidents involving the separation of tractor-semitrailer combinations are described. In both cases the vehicles had been coupled by the drivers and were driven only a few miles before the accidents. One vehicle collided with an auto, resulting in two fatalities and \$4,000 property damage. The other vehicle struck a guardrail resulting in fire and \$10,000 property damage. In the first case the coupling was done negligently and in the second case a locking device for the fifth wheel was not provided.

Search terms: Truck accidents; Tractor-semitrailers\*; Truck drivers; Property damage; Accident causes; Defective vehicles; Guardrails; Fires; Negligence\*; Collisions (accidents); Accident investigation; Automobile accidents; Air Products and Chemicals, Inc.\*; Kowalsky Express Service\*

#### HS-006 010 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. MOTOR**

**FREIGHT CORP. AND MCCORD TRUCK LINES—ACCIDENT—FEBRUARY 4, 1969—ADAMS, TENN.**

Bureau of Motor Carrier Safety, Washington, D.C.

1969 11p  
Report no. 69-3

Two fatalities and about \$45,000 property damage resulted from a head-on collision between two tractor-semitrailers, one of which was trying to pass an auto on an ascending grade. Reckless driving on the part of the truck driver who was attempting to pass caused the accident. This driver had a bad driving record.

Search terms: Fatalities; Property damage; Head on collisions; Reckless driving; Truck drivers; Driver records; Passing (driving); Road grades\*; Tractor-semitrailers\*; Truck accidents; Accident causes; Accident location; Accident investigation; Motor Freight Corp.\*; McCord Truck Lines\*

#### HS-006 011 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. BRAY LINES, INC.—ACCIDENT OF FEBRUARY 10, 1969—KINGMAN, KANSAS**

Bureau of Motor Carrier Safety, Washington, D.C.

1969 10p  
Report no. 69-4

Three fatalities and \$2,000 property damage resulted from a collision between a disabled tractor-semitrailer stalled across the opposing traffic lane and a fast-moving auto at night. The truck had suffered brake failure, and excessive speed of the auto contributed to the accident.

Search terms: Truck accidents; Fatalities; Property damage; Unsafe speed; High speed; Tractor-semitrailers\*; Disabled vehicles\*; Brake failures\*; Night driving; Visibility; Accident causes; Accident location; Accident investigation; Reckless driving; Negligence\*; Automobile accidents; Bray Lines, Inc.\*



### 1/3 Investigation & Records (Cont.)

HS-006 012 Fld. 1/3; 3/4

#### INVOLVEMENT OF THE PROBLEM DRIVER IN FATAL MOTOR VEHICLE ACCIDENTS

by Alfred Crancer

Washington. Dept. of Motor Vehicles, Olympia

Feb 1967 40p

Report no. 002

Published October 1967 by Traffic Quarterly

This study determines the degree of involvement of the problem driver in 823 fatal motor vehicle accidents which occurred in Washington State during 1966. The involved drivers were significantly different, regardless of culpability, from the typical Washington driver in the following respects: driving record, age, sex, type of violation on driving record. The violation patterns for drivers involved in fatalities, in one-car fatalities, and in pedestrian-car fatalities are also given.

Search terms: Fatalities; Violations; Driver records; Accident studies; Accident types; Accident data; Washington\*; Problem drivers; Age factor in accidents; Sex factor in accidents; Pedestrian accidents; Traffic accidents; Adolescent drivers\*; Aged drivers\*; Motorcycle accidents; Bicycles; Single vehicle accidents; Railroads; Driver license suspension; Liability

AVAILABILITY: Corporate author

HS-006 013 Fld. 1/3

#### BICYCLES: AN ANALYSIS OF ACCIDENTS IN NORTH CAROLINA

by Patricia F. Waller; Donald W. Reinfurt

North Carolina Univ., Chapel Hill. Highway Safety Research Center

Feb 1969 56p

Report no. PB-184 394

Five categories of variables were investigated: environmental factors; characteristics of the accident; presence of defects in the motor vehicle involved in the accident and

whether the driver was charged with a traffic violation; the age, sex, and physical condition of the motor vehicle driver; the age and sex of the bicyclist. A high percentage of female drivers are involved in bicycle accidents, probably because many occur in residential areas. Fatal accidents are more likely to involve older bicyclists and to occur in open country at higher motor vehicle speeds; non-fatal accidents are concentrated in residential areas and involve younger bicyclists.

Search terms: Accident factors; North Carolina\*; Accident analysis; Fatalities; Sex factor in accidents; Age factor in accidents; Defective vehicles; Bicycle accidents\*; Traffic violations; Speed; Environmental factors; Accident location; Driver characteristics

AVAILABILITY: CFSTI as PB-184 394

HS-006 014 Fld. 1/3; 2/9

#### SPEED ZONING: A THEORY AND ITS PROOF

by William C. Taylor

Published in *Traffic Engineering* v35 n4 p17+ (Jan 1965) 6p

Presents a new theory of speed zoning and the results of tests designed to validate it. Theory is that a relationship exists between the rate of accident occurrence and the distribution of speeds on rural highways and that the effectiveness of speed zoning in reducing accidents depends on speed distribution before and after zoning.

Search terms: Accident prevention; Accident rates; Rural highways; Speed patterns; Zones; Speed limits; Variables\*

HS-006 015 Fld. 2/4

#### AN EXPERIMENT WITH EVER-GREEN TREES IN EXPRESSWAY MEDIANS TO IMPROVE ROADWAY DELINEATION

by John W. Hutchinson, Janis H. Lacis

Illinois. Dept. of Public Works and Buildings, Springfield. Div. of Highways

1965 29 p 15 refs

Simulated median plantings were installed on selected portions of two Chicago expressways to determine whether such a means of providing roadway delineation would significantly reduce the frequency of vehicle encroachment on the median. There was a significant reduction in the frequency of encroachment on the medians of both expressways, with the greatest reductions occurring on or near curved alignment where the hazard headlight glare from opposing vehicles had previously been greatest. The findings suggest the possibility of substantial improvement in the safety of divided highways through development and use of median plantings.

Search terms: Plants\*; Trees\*; Medians (dividers); Delineators (traffic)\*; Glare reduction; Road curves; Freeways; Accident prevention; Safety design; Highway safety

AVAILABILITY: Corporate author

HS-006 016 Fld. 2/4; 1/3

#### CURVE DELINEATION AND ACCIDENTS. AN EVALUATION OF CURVE DELINEATION BY ACCIDENT ANALYSIS

by William C. Taylor, Thomas J. Foody

Ohio. Dept. of Highways, Columbus. Bureau of Traffic

Jan 1966 34p

Report no. 1-14866

This study determines the effectiveness of curve delineation in reducing accidents. Statistical tests were used to evaluate the effectiveness of various programs on a two year before and after analysis of accidents. The parameters tested were degree of curvature, central angle, the combination of degree of curvature and central angle, and type of accident. It was determined that a program of curve delineation based solely on degree of curvature (Ohio's program) was an effective, but not an efficient program. The central angle provides a better measure of delineation effectiveness than does the degree of curvature. A more efficient program was outlined and warrants for this new program specified.

### 1/3 Investigation &

HS-006-016 (Cont.)

#### Records (Cont.)

Search terms: Road curves; Accident prevention; Accident types; Statistical analysis; Highway design; Delineators (traffic)\*; Safety design; Reflectors; Chi square test

HS-800 158 Fld. 1/2; 1/3

#### MEDICO-ENGINEERING RESEARCH PROGRAM. FINAL REPORT

by John R. Finch; Ardis W. White; James P. Smith

Baylor Univ., Houston, Tex. Coll. of Medicine

1969 456p  
Contract FH-11-6798

The purpose of this research project was to accumulate a body of knowledge on the causes of motor vehicle crashes and the consequent injuries, deaths, and property losses. A primary point of emphasis is correlation of the vehicular kinematics with the occupant injury kinematics so that effectiveness of safety features could be evaluated. Another basic purpose was to train a multidisciplinary team for accident investigation. Scientifically-based proposals for vehicle safety improvement and suggestions for improved legislative programs are included. Data was developed from on-site investigations, study of medical reports and damaged vehicles, interviews with the injured, and psychiatric evaluation of the involved drivers where possible.

Search terms: Accident analysis; Accident causes; Accident investigation; Accident factors; Accident studies; Fatalities; Injury factors; Injury research; Accident reports; Interviews\*; Accident data; Multidiscipline teams\*; Case reports\*; Kinematics; Safety devices; Motor vehicle accidents; Motor vehicle safety devices; Driver behavior; Psychological factors; Damage; Safety laws; Human factors engineering; Data acquisition

HS-006 044 Fld. 1/3

#### TRUCK ACCIDENT STUDY. REPORT OF PROCEDURES AND

### FINDINGS

Ernst and Ernst, Cleveland, Ohio  
Aug 1968

Prepared for Automobile Manufacturers Association, Inc.

Data on 1,029 truck accidents were analyzed and other accident reports surveyed. Data helped to establish the frequency of various kinds of accidents under widely varying environmental conditions and vehicle conditions. Guidelines concerning injuries and fatalities to drivers, passengers, and pedestrians were established. The most frequent tractor-trailer accident is collision with a passenger car, followed by single-vehicle accidents and collision with another tractor-trailer. Other factors found significant were drinking by truck drivers, defects in the vehicles, speed, seat belt usage.

Search terms: Accident factors; Accident analysis; Accident records; Truck accidents; Single vehicle accidents; Collisions (accidents); Seat belt usage\*; Accident data; Pedestrian accidents; Accident causes; Injuries; Fatalities; Defective vehicles; Automobiles; Tractor-trailers; Accident types; Drinking drivers; Speed; Environmental factors; Truck drivers

AVAILABILITY: Corporate author

HS-006 045 Fld. 1/3; 3/4

#### ANALOGUE 1000

by Robert K. Konkle

Published in *FBI Law Enforcement Bulletin* v38 n8 p12-6, 22 (Aug 1969)

An in depth study of 1000 fatal traffic accidents in Indiana was made to determine their causes. Analysis of the data compiled showed that accidents were related to: drugs including alcohol; educational level of driver; novice drivers; traffic law violations; vocational factors; careless drivers; suicides; and mechanical defects.

Search terms: Indiana\*; Fatalities; Environmental factors; Weather; Rural accidents; Drinking drivers; Age factor in accidents; Alcoholism; Drugs; Defective vehicles; Accident investigation; Suicide\*; Traffic safety; Careless driving; Accident data; Accident causes;

Drinking drivers; Driver intoxication; Socioeconomic data; Adolescent drivers; Driving experience\*; Traffic violations

HS-006 052 Fld. 2/0; 1/1; 1/3

#### AN ANALYSIS OF EMERGENCY MEDICAL SERVICE FATAL AND NON-FATAL MOTOR VEHICLE INJURIES IN SAN FRANCISCO

by Barry Griffith King; Gertrud Weiss; Ellis Sox

Environmental Control Administration, Cincinnati, Ohio. Injury Control Program

9 refs

The nature and severity of injury and the physical characteristics of the victim are principal factors in establishing the demands on an emergency care system. Analysis was made of 1,162 dead-on-arrival victims and a 20% sample of some 50,000 other cases. Survival potential of the fatality cases is analyzed and three case histories given. Detailed information on injuries and time factors is necessary to evaluate emergency medical care systems.

Search terms: Accident data; Emergency medical services; Ambulances; Autopsies\*; Fatalities; Hospitals\*; Time factors\*; Case reports\*; Injury factors; Injury severity; San Francisco\*; Motor vehicle accidents

AVAILABILITY: In American Assoc. for Automotive Medicine, PRE-CRASH FACTORS IN TRAFFIC SAFETY, 17-18 Oct 1968, p117-39 (HS-006 046)

HS-006 053 Fld. 2/0; 1/3; 3/4

#### MAPPING YOUNG DRIVERS IN BEHAVIORAL SPACE

by Stanley H. Schuman; Donald C. Pelz

Michigan Univ., Ann Arbor. Highway Safety Research Inst.

3 refs

Michigan data is presented on types of fatal accidents characteristic of young drivers. Drivers are grouped into six categories and their driving behavior and risk taking analyzed. Single car accidents are found to be characteristic of young male drivers.

## 1/3 Investigation &

### HS-006-053 (Cont.) Records (Cont.)

Search terms: Age factor in accidents; Sex factor in accidents; Driver attitudes; Personality; Problem drivers; Driver behavior; Sociological aspects; Behavior analysis; Michigan\*; Young adult drivers\*; Risk taking\*; Single vehicle accidents; Fatalities; Psychological factors

AVAILABILITY: In American Assoc. for Automotive Medicine, PRE-CRASH FACTORS IN TRAFFIC SAFETY, 17-18 Oct 1968, p141-54 (HS-006 046)

### HS-006 059 Fld. 2/0; 1/3

#### MEDICAL-ENGINEERING PANEL: THE STORY OF AN ACCIDENT

by Harold A. Fenner, Jr.; W. Jack Ruby; Donald F. Huelke; Arnold W. Siegel

Ford Motor  
21 refs

Some engineering concepts and problems in accident investigation are introduced to the medical profession. Reconstruction of the injury producing mechanisms in an automobile collision is a major problem. Standards for the description of injuries are urgently needed.

Search terms: Injury factors; Accident investigation; Human factors engineering; Kinematics; Motor vehicle dynamics; Injury severity; Collisions (accidents); Restraint systems; Rear end collisions; Side impact collisions; Interior design; Automobile design; Speed; Rollover accidents

AVAILABILITY: In American Assoc. for Automotive Medicine, PRE-CRASH FACTORS IN TRAFFIC SAFETY, 17-18 Oct 1968, p223-44 (HS-006 046)

### HS-006 076 Fld. 5/14; 1/3

#### SEAT BELTS AND INJURY REDUCTION IN 1967 NORTH CAROLINA AUTOMOBILE ACCIDENTS

by B. J. Campbell

North Carolina Univ., Chapel Hill.  
Highway Safety Research Center

Dec 1968 14p

A statistical analysis of some accidents in North Carolina, aimed at documenting injury reduction associated with belt use, concludes that lap belts can reduce serious injuries by about 36 percent with an even greater reduction in fatalities, the benefits are largely related to ejection control, and benefits in frontal impacts are greatly limited. Similarities between the findings of this study and the 1960 Cornell University findings are listed.

Search terms: North Carolina\*; Speed\*; Injury prevention; Seat belts; Seat belt usage\*; Automobile accidents; Injuries; Fatalities; Ejection; Head on collisions; Statistical analysis; Single vehicle accidents; Accident studies; Motor vehicle accidents

AVAILABILITY: Corporate author

### HS-006 077 Fld. 5/14; 1/3

#### SEAT BELT USE AMONG DRIVERS IN ACCIDENTS AND DRIVERS IN THE POPULATION AT RISK

by B. J. Campbell

North Carolina Univ., Chapel Hill.  
Highway Safety Research Center

Jan 1969 16p

Seat belt usage among North Carolina accident-involved drivers and drivers not so involved is compared. Variables covered are driver sex, car age, and car registration. Results of the comparisons show that regular use of seat belts has not become an accepted practice, and attempts to promote their use have not been successful, even among those who become involved in accidents. It was suggested that since accidents are more prevalent among socially and educationally disadvantaged persons and certain age groups, seat belt promotion should be aimed at people in these categories.

Search terms: North Carolina\*; Seat belt usage\*; Driver miles\*; Seat belts; Accident severity; Injuries; Fatalities; Sex factors; Accident factors; Automobile characteristics; Out-of-state drivers; Drivers; Out-of-state vehicles; Accident prevention; Statistical analysis; Sociological aspects; Automobile models

AVAILABILITY: Corporate author

### HS-006 102 Fld. 1/2; 1/3

#### SUDDEN NATURAL DEATH AMONG AUTOMOBILE DRIVERS

by Bonita J. Peterson; Charles S. Petty

Published in *Journal of Forensic Science* v7 n3 p274-85 (Jul 1962) 35 refs

Grant HTS-5163 (63)

Presented at 14th annual meeting of American Academy of Forensic Sciences, Feb. 22, 1962, Chicago, Ill.

Heart disease was the most frequent cause of death among 81 drivers who died suddenly from natural causes at the wheel of a motor vehicle. In a study of such driver fatalities occurring principally in Baltimore, Maryland, during a 4-year period, the resulting accidents were minor, producing little damage to property and no serious injury to pedestrians, passengers, or other drivers. More than half of the 81 drivers were apparently able to stop the automobile before an accident occurred. The study suggests that these individuals are not as great a menace as might be expected and that a high blood alcohol level is not likely to be a contributory factor.

Search terms: Maryland\*; Fatalities from natural causes\*; Heart diseases\*; Case reports\*; Blood alcohol levels\*; Passengers; Autopsies\*; Property damage; Age factor in accidents; Accident risks; Pedestrians

### HS-006 123 Fld. 3/11; 1/3

#### THE NEW IMAGE OF THE OLDER PEDESTRIAN

by Sam Yaksich, Jr.

Published in *Traffic Safety* v65 n2 p22-4, 35-6 (Feb 1965)

Physical limitations due to age are a major factor in traffic accidents involving older pedestrians. Detailed studies of injuries and fatalities of this age group indicate that most accidents occur at intersections with vehicles traveling at low speeds; nighttime and dusk are particularly hazardous; males are more vulnerable; and that there is very little evidence of alcohol and suicide as being contributing factors. Suggestions are

### 1/3 Investigation & Records (Cont.)

HS-006-123 (Cont.)

made for improving the safety of older pedestrians.

Search terms: Pedestrian accidents; Pedestrian behavior; Pedestrian safety; Aged\*; Injuries; Fatalities; Community support; Intersections; Sex factor in accidents; Vision\*; Reaction time; Age factor in accidents; Suicide\*; Traffic safety programs; Pedestrian intoxication; Hazards

HS-006 162 Fld. 1/3; 2/6

#### FATAL ACCIDENT PROBERS REPORT FINDINGS

Anonymous

Published in *Chicago Traffic Safety Review* p1-3 (Nov-Dec 1963)

A Committee for Fatal Traffic Accident Investigation reported to the mayor of Chicago its investigations of 261 fatal accidents. It found that accident causes could not be clearly established, were never due to physical conditions at the scene, and apparently resulted from driver or pedestrian error. Some recommendations for improvements to roads were made, but in more than half the accidents no corrections at the site were needed.

Search terms: Fatalities; Accident investigation; Chicago\*; Freeways; Accident location; Accident causes; Highway maintenance; Pedestrian accidents; Streets

HS-006 163 Fld. 1/3; 2/7

#### JUST ADD WATER—AND INSTANT ACCIDENT

by Myron Sartain

Published in *Texas Parade* v29 n10 p34, 36-7 (Mar 1969)

Hydroplaning is now regarded as a major cause of wet-weather accidents. New research shows that with only 0.04 inches of water on the road pavement, tires lose all contact with road even at speeds well below the legal limit. Two forms of hydroplaning—dynamic and viscous—and ways to prevent hydroplaning are discussed.

Search terms: Wet skidding; Tire-road conditions; Speed; Inflation pressure; Wet road conditions; Skidding accidents; Tire dynamics

HS-006 164 Fld. 1/3

#### AN ANALYSIS OF TRAFFIC ACCI- DENTS ON COUNTY ROADS

by Harold L. Michael; Donald F. Petty

Published in *Traffic Safety and Research Review* v10 n2 p44-52 (Jun 1966) 10 refs

Analysis of a ten county Indiana accident survey conducted in 1960-61 shows that narrow roadways and shoulders, absence of centerlines, road surfaces, and insufficient use of traffic controls were major factors in Indiana's county road accidents. Each major factor, with recommendations for corrective measures, is discussed in detail.

Search terms: Accident causes; Indiana\*; Accident analysis; Traffic accidents; Road shoulders; Rural highways; Highway design; Traffic markings; Traffic control; Intersections; Property damage; Costs\*; Accident severity; Weather; Traffic violations; Visibility; Road surfaces; Accident types; Accident factors; Skidding accidents; Traffic safety programs; Time factors\*; Speed

HS-006 165 Fld. 1/3

#### DRIVER AGE AND SEX RELATED TO ACCIDENT TIME AND TYPE

by B. J. Campbell

Published in *Traffic Safety and Research Review* v10 n2 p36-43 (Jun 1966)

Simple tabulations are presented describing accident characteristics of several driver groups. Age and sex differences in time and day of accidents are shown. Of the accidents studied, older drivers and females showed relatively less involvement in single car accidents. Males were relatively more involved in night and weekend accidents. The study was based on records of 32,387 drivers involved in injury-producing accidents.

Search terms: Accident types; Age

factor in accidents; Sex factor in accidents; Time factors\*; Motor vehicle accidents; Single vehicle accidents; Accident factors; Accident data; Injury factors; Night driving; Accident studies

HS-006 166 Fld. 1/3

#### TRAFFIC ACCIDENT FACTS 1967

Washington. State Patrol, Olympia

Aug 1968 29p

Gives statistical data on traffic accidents in the state of Washington. Fatality rates, driver and pedestrian information, road surface and light conditions, type of motor vehicle, trends and a 30 year comparison of accidents are included. Traffic accidents increased 5.7% during the past year while the motor vehicle death rate (deaths per 100 million vehicle miles) dropped from 5.0 deaths in 1966 to 4.9 deaths in 1967.

Search terms: Accident data; Washington\*; Traffic accidents; Fatalities; Injuries; Accident types; Accident rates; Accident factors; Pedestrian accidents; Age factor in accidents; Rural accidents; Urban accidents; Time factors\*

AVAILABILITY: Corporate author

HS-006 167 Fld. 1/3

#### SOME COMMENTS ON ACCIDENT PREVENTION RESEARCH

by Barry G. King

Published in *Traffic Safety and Research Review* v7 n2 p19-21 (June 1963)

Four basic types of human factors aspects of safety research are identified: descriptive epidemiology to define the problem and evaluate the effectiveness of prevention measures; investigative epidemiology to identify accident patterns; experimental studies on man, machine, and environment; and accident investigation. Accident prevention research should include a broad spectrum of the basic medical and behavioral sciences.

Search terms: Epidemiology\*; Behavior analysis; Accident prevention; Accident studies; Accident investigation; Accident causes; Medical sciences; Human behavior; Man machine systems; Environ-

## 1/3 Investigation &

### Records (Cont.)

HS-006-167 (Cont.)

mental factors

HS-006 168 Fld. 1/3

#### ANALYSIS OF ROAD ACCIDENTS, 1967 TREATED AT THE GENERAL HOSPITAL, OUTRAM ROAD

by D. W. C. Gawne

Published in *Berita Jururawat* v8 p37-43 (Apr 1968)

Little correlation between police, hospital and the Registrar of Vehicles records in Singapore was apparent. This study attempts an approximation from vehicle records so that a match could be made with hospital figures for accidents to determine the possible causes of road accidents and the patterns of injuries. Auto, motor-cycle, scooter, and bicycle accidents are analyzed. The incidence of head injuries is discussed.

Search terms: Accident data; Injuries; Accident causes; Accident rates; Fatalities; Singapore\*; Pedestrian accidents; Accident records; Head injuries; Bicycle accidents\*; Motorcycle accidents\*; Motor scooter accidents\*; Automobile accidents

HS-006 193 Fld. 3/9; 1/3

#### HIGHWAY CRASH AND CITATION PATTERNS AND CHRONIC MEDICAL CONDITIONS

by Julian A. Waller; James T. Goo

Published in *Journal of Safety Research* v1 n1 p13-27 (Mar 1969) 9 refs

Types of crashes and citations were compared for 1,701 drivers with chronic medical conditions and 921 drivers not known to have medical conditions. Drivers without medical conditions committed no errors in about half of their crashes whereas those with alcoholism committed no errors in 13% of their crashes. Drivers with other medical conditions were error-free in a third of their crashes. Kinds of errors committed by impaired drivers, drivers under 30, and drivers over 60 are analyzed.

Search terms: Medical conditions; Traffic violations; Accident types;

Age factor in accidents; Accident studies; Accident data; Alcoholism; Mental illness; Drug addiction; California\*; Driver physical fitness; Heart diseases\*; Epilepsy\*; Diabetes mellitus\*; Accident responsibility; Aged drivers\*; Young adult drivers\*

#### HS-006 195 Fld. 3/12; 3/8; 1/3; 2/7 CALIFORNIA'S REDUCED VISIBILITY STUDY HELPS CUT DOWN TRAFFIC ACCIDENTS WHEN FOG HITS AREA

by James E. Wilson

Published in *Traffic Engineering* v35 n11 p12-4, 44-51, 53 (Aug 1965)

Various means of giving advance warning to drivers of the need for greater driving caution during periods of reduced visibility have been studied. Studies were undertaken after a series of chain reaction crashes. Ways of affecting the driving behavior of motorists who disregard reduced visibility were tested. Signs, speed limits, tailgating, headway, traffic markings, increased patrol car surveillance were studied.

Search terms: Fog; Driving conditions; Visibility; California\*; Reduced visibility; Tailgating; Headway\*; Traffic markings; Law enforcement\*; Police traffic services; Highway signs; Speed limits; Speed reduction; Driver behavior; Accident causes

HS-006 212 Fld. 1/3

#### ACCIDENTS: ANALYSIS BY COMPUTER

by W. Léa

Published in *Journal of the Institution of Highway Engineers* v14 n3 p21-3, 25-31 (Mar 1967)

A method is suggested for analyzing the large amount of accident data available from police records. Accidents are located on the road and coded by type with additional information relating to the accident and road conditions. Traffic volume information is used to enable accident rates to be calculated.

Search terms: Computers; Data processing; Accident data; Accident rates; Great Britain; Accident analysis; Accident location; Accident types; Road conditions; Traffic volume; Accident causes

HS-006 213 Fld. 1/3

#### DRIVEWAY ACCIDENT AND VOLUME STUDIES

by Paul C. Box

Published in *Public Safety Systems* v34 n3 p18-22 (May-Jun 1969)

Driveway street connections actually form intersections. Because of the typically minor traffic role, little design effort has been addressed toward actual driveway operations. Part 1 of this series illustrates general relationships among land uses, traffic volume, and accidents in which driveways were influencing factors. The purpose of the study was to relate service station accidents to other commercial and industrial uses and to residential driveways.

Search terms: Driveways; Traffic volume; Intersections; Accident studies; Accident rates; Accident types; Service stations; Accident location; Land use

HS-006 214 Fld. 1/3

#### THE HIDDEN COSTS OF ACCIDENTS

by Carlton D. Schoolcraft

Published in *Traffic Safety* v68 n4 p6-8, 34-5 (Apr 1968)

Describes how the causes and cost of an accident are computed, using both direct and indirect costs. Applies generally to industrial accidents; some truck accident information is included.

Search terms: Truck accidents; Accident analysis; Costs; Accident causes; Industrial accidents

HS-006 215 Fld. 1/3

#### LET'S INVESTIGATE SERIOUS ACCIDENTS

by J. Stannard Baker

Published in *Analogy* p10-4 (Autumn 1969)

Thorough police reporting at the scene of an accident can help place liability and also gather valuable safety information. In the case of serious accidents reconstruction should be conducted by trained personnel using scientific techniques to obtain specific data. Better training of police in accident investigation is

### 1/3 Investigation & Records (Cont.)

HS-006-215 (Cont.)

recommended. Cases supporting the value of accident reconstruction are presented.

Search terms: Police traffic services; Accident reconstruction; Accident investigation; Accident investigation training; Accident causes; Accident reports; Liability; Case reports; Accident severity; Accident responsibility

HS-006 216 Fld. 1/3

#### ACCIDENT RECORDS AND RESEARCH

by David M. Baldwin

Published in *Traffic Safety and Research Review* v7 n3 p6-8 (Sep 1963)

Accident reporting must be improved to provide the researcher with valid data on which to base meaningful conclusions in order to reduce motor vehicle accidents. Examples of how the quality of records can be improved are given in the areas of speed, alcohol, vehicle condition, and light and weather conditions.

Search terms: Accident prevention; Accident data; Accident analysis; Accident records; Speed; Defective vehicles; Environmental factors; Weather; Drinking drivers; Driver intoxication; Accident causes

HS-006 217 Fld. 1/3

#### THE EPIDEMIOLOGY OF ACCIDENTS

by John E. Gordon

Published in *American Journal of Public Health* v39 p504-15 (Apr 1949) 22 refs

The method of epidemiology, originally restricted to the communicable diseases, has been extended to a broad application to mass disease in man. Accidents and injuries are equally susceptible to this approach; accidents as a public health problem conform to the same biologic laws as do disease processes and regularly evidence a comparable behavior. Illustrations of this concept and case studies are presented. This is the historic paper which has been widely

cited in the literature since its publication some two decades ago.

Search terms: Accident causes; Injuries; Age factor in accidents; Sex factor in accidents; Epidemiology; Fatalities; Case reports; Diseases

HS-006 226 Fld. 2/9; 1/3

#### STUDY OF TRAFFIC PHENOMENA THROUGH DIGITAL SIMULATION. FINAL REPORT, 1 SEPTEMBER 1962-31 MAY 1966

by A. D. St. John

Midwest Research Inst., Kansas City, Mo.

25 Jan 1967 102p 10 refs  
Grant PHS-AC-00106

Supported in part by U.S. Steel Co. and International Business Machine Corp.

Main features and results from a digital traffic simulation are presented. The simulation model, based on vehicle dynamics and human factor considerations, was developed to study accidents in the freeway environment. The simulation treats following and overtaking maneuvers including those which are accepted and imposed in weaving and merging. Some of the results show that risks are frequently imposed and accepted in weaving, merging, and short headway driving, but infrequently become critical incidents or accidents; drivers stable under moderate conditions may become unstable under severe conditions; stable drivers compensate for erratic drivers; and projective skills are essential for the close following driver.

Search terms: Single lane traffic; Traffic simulation; Accident studies; Accident simulation; Headway; Passing (driving); Tailgating; Simulation models; Weaving traffic; Merging traffic; Freeways; Overtaking (driving); Computerized simulation; Digital computers; Gap acceptance; Driving simulation; Following distance; Deceleration; Acceleration (physics); Driver behavior; Risk taking

AVAILABILITY: Corporate author

HS-006 235 Fld. 3/11; 1/3

#### SOME ASPECTS OF PEDESTRIAN SAFETY

by R. J. Smeed

Published in *Journal of Transport Economics and Policy* v2 n3 p255-79 (Sep 1968) 15 refs

From a lecture given to the International Federation of Pedestrians, 19 Apr 1968.

The trends in pedestrian accidents are reported. Factors affecting these trends, such as age of the pedestrian, weather, hour of the day, and type of road, are presented. Differences in the fatality rates of different countries are pointed out. Suggestions are made for reducing the number of accidents.

Search terms: Benefit cost analysis; Pedestrian safety; Pedestrian behavior; International aspects; Accident prevention; Accident rates; Fatalities; Night driving; Visibility; Police traffic services; Pedestrian accidents; Accident data; Age factor in accidents; Environmental factors; Weather; Time factors; Driver behavior

HS-006 241 Fld. 5/0; 1/3

#### AUTOMOBILE SIDE-IMPACT COLLISIONS, SERIES 2

by D. M. Severy; J. H. Mathewson; A. W. Siegel

California Univ., Los Angeles. Inst. of Transportation and Traffic Engineering

Mar 1962 45p

Report no. SAE-491A; SAE-SP-232

Presented at SAE National Automobile Week, Detroit.

Engineering methodology and research techniques, applied to 12 intersection-type automobile collision experiments, provided data on four speeds of impact and on three positions of impact. Anthropometric dummies provided collision force and kinematic data for several conditions of restraint. Advanced photographic equipment identified new approaches to solving the motorist collision injury problem.

Search terms: Side impact collisions; Automobile accidents;



## 1/3 Investigation &

### Records (Cont.)

#### HS-006-241 (Cont.)

Collision tests; Injuries; Human factors engineering; Anthropometric dummies; Restraint systems; Photography; Kinematics; Intersections; Impact tests; Head injuries; Windows; Ejection

AVAILABILITY: In Society of Automotive Engineers, HIGHWAY VEHICLE SAFETY, 1968, p11-55 (HS-006 239)

#### HS-006 277 Fld. 1/3

#### CHICAGO TRAFFIC ACCIDENT COSTS ALMOST \$115,500,000 YEARLY

Anonymous

Published in *Chicago Traffic Safety Review* p1-4 (Jul-Aug 1962)

A brief description of an Illinois traffic accident cost study is given. This study found that reported accidents in 1958 accounted for only 57% of the total accident costs. The number of accidents not reported is large. Costs and characteristics of accidents were to be related to highway and street features.

Search terms: Costs; Accident reports; Chicago; Property damage; Accident studies; Injuries; Illinois; Traffic accidents; Unreported accidents; Accident location; Accident types

#### HS-006 278 Fld. 1/3; 4/7

#### SOME INVESTIGATIONS ON THE RELATIONSHIP BETWEEN ROAD ACCIDENTS AND ESTIMATED TRAFFIC

by S. Erlander; J. Gustavsson; E. Larusson

Stockholm Univ. (Sweden). Inst. for Forsakringsmatematik och Matematisk Statistik

1968 61p 6 refs  
Report no. 29

Mathematical models were developed to study the relationship between the number of accidents and the amount of traffic for use in analyzing accident data. The day-by-day variation

during 1962 in the number of injury-producing road accidents in rural areas and their relation to the daily estimated traffic in Sweden was studied. Analysis of group-mean-corrected residuals indicates that there is a correlation between successive days for accidents as well as estimated traffic. Analysis further suggested that Poisson models with two regression parameters are preferable to Poisson models with one regression parameter. Comments made on the results for accidents involving injuries are also valid for results obtained for the total number of accidents.

Search terms: Accident studies; Mathematical models; Sweden; Forecasting; Traffic volume; Accident data; Regression analysis; Accident investigation; Traffic data analysis; Variance analysis

AVAILABILITY: Corporate author

#### HS-006 279 Fld. 1/3

#### PROJECT IMPACT CUTS ACCIDENTS

by Terry Sanford

Published in *Traffic Safety* v62 n3 p12-5, 36 (Mar 1963)

North Carolina's Project Impact utilized the three E's—education, engineering, enforcement—to save lives and reduce accidents. In six months, 19 lives were saved, 183 injuries prevented, and \$3,420,000 in accident costs were saved at an expenditure of \$1,293,000. A special barb was aimed at drunken drivers who are involved in at least 32% of the fatal accidents. A higher traffic law enforcement level and traffic engineering improvements were utilized.

Search terms: Safety programs; Accident prevention; Community support; Police traffic services; Highway safety; Traffic engineering; Costs\*; North Carolina\*; Driver intoxication; Drinking drivers; State government; Accident rates; Safety campaigns; Traffic law enforcement; Injury prevention

#### HS-006 289 Fld. 3/1; 1/3

#### FACT AND FICTION ABOUT ACCIDENTAL INJURY

by Julian A. Waller

Published in *Northwest Medicine* v67 n5 p451-7 (May 1968) 14 refs

Presented at 14th Annual Pacific Northwest Occupational Health Conference, Portland, Oregon, Nov. 14, 1967.

Accidental injury commonly is still thought of in a prescientific manner and has as yet benefited only rarely from rational consideration. Due to inadequately collected data, injury is still being considered the result of sinfulness, carelessness, thoughtlessness, or inattention, and not as the result of concurrence of forces. A single factor may produce multiple effects and a single effect may result from the combined operation of several factors. Alcohol and drinking drivers are major factors in highway and non-highway injury. Even low blood concentrations of alcohol will impair ability to cope with hazardous conditions. Most persons injured after drinking have high concentrations and are problem drinkers.

Search terms: Injury factors; Accident factors; Driver intoxication; Drinking drivers; Public opinion; Accident causes; Fatalities; Blood alcohol levels; Alcoholism

#### HS-006 322 Fld. 1/2; 1/3

#### SPECIAL FATAL ACCIDENT STUDY. JAN. 1-DEC. 31, 1967

South Carolina. Highway Patrol, Columbia

1968 12p

This study covers 741 fatal accidents on South Carolina highways, which resulted in 913 deaths during 1967. The data reflects information pertinent to the individual contributing driver, pedestrian, and motor vehicle. Specific factors covered include: weather conditions; seat belt usage; time factors; highway surface and conditions; type, model, and condition of vehicles; pedestrian involvement; driver information covering age, sex, marital status, physical condition, education, occupation, and driving record and experience; and accident information covering number of vehicles involved, type of accident, and violations.

# **1/3 Investigation & Records (Cont.)**

**HS-006-322 (Cont.)**

Search terms: South Carolina; Fatalities; Sociological aspects; Socioeconomic data; Accident data; Accident factors; Age factor in accidents; Pedestrian accidents; Road conditions; Highway characteristics; Marital status; Time factors; Driving experience; Sex factor in accidents; Driver physical fitness; Driver records; Accident types; Traffic violations; Environmental factors; Weather; Seat belt usage

AVAILABILITY: Corporate author

**HS-006 324 Fld. 1/3**

**WHITHER ACCIDENT RESEARCH?**

by Leon G. Goldstein

Published in *Traffic Safety Research Review* v7 n1 p2-4 (Mar 1963) 19 refs

Human factors are generally regarded as the major source of failures leading to traffic accidents. Seventeen areas are recommended for study. These deal with accident causes, driver behavior, driver fitness, and similar factors relating to accident involvement.

Search terms: Accident studies; Accident prevention; Human factors engineering; Safety programs; Driver behavior; Driver-vehicle interface; Accident causes; Driver physical fitness

**HS-006 325 Fld. 1/3**

**THE ROLE OF THE PHYSICIAN IN ACCIDENT PREVENTION**

by Abraham J. Mirkin

Published in *Traffic Digest and Review* v14 n5 p12-6 (May 1966)

Presented at the American Medical Association's Third Congress on Environmental Health Problems.

Physicians have a new role to play in preventing death and disability from traffic accidents. Through persuasion, admonition and direction, patients must be made aware of carbon monoxide accumulations from smoking, age and decreasing visual ability, drugs, alcohol, acute and chronic medical conditions, and

emotional disturbances and their effects on driving.

Search terms: Medical conditions; Physicians; Accident factors; Carbon monoxide; Drinking drivers; Drugs; Mental illness; Accident prevention; Driver physical fitness; Smoking factor in driving; Vision; Age factor in accidents; Driver intoxication

**HS-006 326 Fld. 1/3**

**MOTOR VEHICLE TRAFFIC ACCIDENTS, 1964**

Canada. Dominion Bureau of Statistics, Ottawa, Ont.

Jan 1966 71p

Report no. Cat-53-206

Traffic accident data for Canada is summarized in broad categories: number of accidents, victims, pedestrians killed and injured, vehicles, drivers, and intersection accidents. The number of fatal accidents between 1963 and 1964 increased by 365.

Search terms: Canada; Accident data; Fatalities; Injuries; Pedestrian accidents; Intersections; Accident location; Accident types; Age factor in accidents; Sex factor in accidents

AVAILABILITY: Corporate author \$1.00

**HS-006 327 Fld. 1/3**

**FATAL ACCIDENTS ON THE STATE MAINTAINED SYSTEM, 1968**

Connecticut. Highway Dept., Wethersfield

1968 55p

Statistical tabulation of Connecticut's 260 fatal accidents during 1968 reveals that 21.7% of the accidents were alcohol involved; 41% of the accidents occurred on two lane, two directional highways; 38.5% occurred on straight-level roads; 37.4% were fixed object collisions; 83.4% occurred in clear weather; 29.2% of the motorists were driving too fast for conditions. There were 41 pedestrian fatalities; 61% of the fatal accidents occurred during hours of darkness; there were 168 single vehicle accidents and 92 multiple

vehicle collisions; 52% of the fatal accidents occurred in urban areas.

Search terms: Accident data; Connecticut; Fatalities; Accident causes; Accident factors; Accident types; Pedestrian accidents; Accident analysis; Drinking drivers; Driver intoxication; Single vehicle accidents; Urban accidents; Unsafe speed; Two lane highways; Night driving; Collisions (accidents)

AVAILABILITY: Corporate author

**HS-006 328 Fld. 1/3; 2/4; 1/4**

**TRAFFIC ENGINEERING TO REDUCE ACCIDENTS**

by Kenneth W. Anderson

Published in *Traffic Engineering* v39 n12 p48-53 (Sep 1969)

A program for seeking out and improving high accident locations is described. The type of study necessary to identify accident locations is discussed. The procedure for determining what improvements are necessary to reduce accidents is stressed, involving study of accident types and patterns. Development of priorities for expenditures is also needed, and should include study of the cost of accidents. Application of this program in Utah is outlined.

Search terms: Accident location; Accident types; Accident analysis; Accident causes; Accident prevention; Costs; Utah; Highway maintenance; Highway characteristics; Benefit cost analysis

**HS-006 329 Fld. 1/3; 3/4**

**A STUDY OF THE RELATIONSHIP OF TIME OF DAY TO MOTOR VEHICLE ACCIDENTS IN NORTH CAROLINA (1966-1968)**

by Kersey Homi Antia

North Carolina Univ., Chapel Hill. Highway Safety Research Center 1969 7p 9 refs

Report no. HSRC-Bull-11

Accident risk is the least during the late morning and early afternoon hours and greatest during the late evening and early morning hours. Contributing factors may be alcohol usage, poor visibility, and fatigue



### 1/3 Investigation & Records (Cont.)

during night time as well as the biological phenomenon of diurnal or circadian rhythm.

Search terms: Accident factors; Time factors; North Carolina; Accident rates; Night driving; Fatalities; Circadian rhythm; Accident risks; Driver physical fitness; Visibility; Driver fatigue; Drinking drivers

AVAILABILITY: Corporate author

HS-006 332 Fld. 2/4; 1/3

#### STUDIES OF MEDIANS IN DEVELOPED AREAS

by Karl Moskowitz

Published in *Highway Research News* n13 p30-43 (Jun 1964)

A study was made in 1960 by the California Division of Highways to determine a policy concerning medians in developed areas. Accident data were compiled on 21 sections of a state highway, of which 12 had curbed medians, and 9 had painted medians. Accident rates for divided highways, whether curbed or painted, are comparable.

Search terms: Highway design; Median barriers; Accident rates; California\*; Intersections; Fatalities; Injuries; Divided highways; Urban highways; Medians (dividers)

HS-006 380 Fld. 5/22; 1/3

#### NON-MOTORWAY ANALYSIS OF TYRE FAILURES

by B. N. Farr

England. Road Research Lab., Crowthorne, Berks.

1969 15p

Report no. RRL-LR-258; PB-184 632

Some 630 incidents reported on roads other than freeways which involved tire failures (deflation, under inflation, or mechanical collapse) were analyzed. The relative risk of a tire failure was found to be greater for a tubed or remolded tire than for a tubeless tire. Remolded tires were more prone to failures caused by tread separation, faulty tire walls, and blow-outs than tires with their

original treads. As a result of the tire failure, 4% of the cars went out of control or were involved in a collision.

Search terms: Questionnaires; Great Britain; Tire failures; Accident causes; Tire condition; Tire performance; Retreads; Tubeless tires; Tubed tires; Inflation pressure

AVAILABILITY: CFSTI as PB-184 632

HS-800 166 Fld. 1/3; 2/9

#### SPEED AND ACCIDENTS. PHASE 1. INTERIM REPORT

Research Triangle Inst., Durham, N.C.

11 Jul 1969 147p

Contract FH-11-6965; PB-186 229

It may be that accidents should be blamed not on absolute values of speed but on the extent to which accident-involved vehicles deviate from the average speed of surrounding traffic flow. The hypothesis tested in this study is that a U-shaped relationship exists between accident-involvement rate and speed deviation from average surrounding traffic. Accident and speed data in Indiana were studied. Digital computers, detectors, and methods used in the study are described. More than 100,000 speed observations were made and 73 accidents investigated. The hypothesis studied appears to be valid.

Search terms: Accident causes; Accident factors; Speed patterns; Traffic flow patterns; Mathematical analysis; Accident investigation; Accident data; Digital computers; Detectors; Speed studies; Accident rates; Indiana; Accident location; Accident studies; Accident reports

AVAILABILITY: CFSTI as PB-186 229

HS-006 386 Fld. 1/3; 2/9

#### TRAFFIC ENGINEER'S APPROACH TO ROAD ACCIDENTS

by J. J. Leeming

Published in *Traffic Engineering and Control* v4 n5 p277,9 (Sep 1962)

Traffic engineers seek to eliminate

road accidents in practical ways by considering four interacting factors; human nature, the law, the vehicle, and the road. Although purely engineering works are the most effective in stopping accidents, and regulatory measures are less effective, the public must be educated to want to stop accidents not merely to call for additional penalties on motorists.

Search terms: Community support; Traffic engineering; Accident prevention; Great Britain; Traffic laws; Highway safety; Driver performance; Motor vehicle safety

HS-006 406 Fld. 4/6; 1/3

#### NEW HOPE FOR CONSENSUS IN THE AUTOMOBILE INJURY IMPASSE

by Alfred F. Conard; J. Ethan Jacobs

Published in *American Bar Association Journal* v52 p533-8 (Jun 1966) 24 refs

The adoption of a compensation system for victims of auto accidents has been urged for 34 years. The argument between those who want a compensation system and those who believe in the present tort liability system continues. The present system is criticized for its slowness and failure to compensate victims adequately. It is claimed that tort liability does not deter bad driving because drivers either have insurance or have no assets that can be seized. Modification of the tort liability system is urged, and suggestions are given for compensating victims through insurance and other means.

Search terms: Liability; Torts; Automobile accidents; Compensation; Insurance; Costs; Financial responsibility; Insurance claims

HS-800 169 Fld. 3/11; 4/1; 1/3

#### PEDESTRIAN REGULATION ENFORCEMENT AND THE INCIDENCE OF PEDESTRIAN ACCIDENTS

by Sidney Singer

Dunlap and Associates, Inc., Darien, Conn.

Aug 1969 91p 71 refs

Contract FH-11-6968; PB-187 519

Report no. D/A-SSD-69-726

Pedestrian protection ordinances.

# 1/3 Investigation & Records (Cont.)

HS-800-169 (Cont.)

their enforcement, and the effectiveness of enforcement in reducing pedestrian accidents were investigated. A literature search revealed a large body of popular material but a lack of scientifically valid information. Analysis of existing data showed no statistically significant relationship between the degree of enforcement activity and pedestrian casualties in urban areas. The data base however, was considered inadequate to make a valid study. The field experiment, conducted in Fort Worth, Sacramento, and Seattle, was divided into three phases: before, during, and after the introduction of a two-week period of increased enforcement. No conclusive results were produced. It was observed that in most states, pedestrian-related regulations conformed substantially with the Uniform Vehicle Code. The report recommends development of better quantitative measures than issuance of citations to indicate the effectiveness of pedestrian regulation enforcement, and consistent nation-wide collection of data on this subject.

Search terms: Pedestrian accidents; Pedestrian behavior; Pedestrian safety; Law enforcement; Regulations; Statistical analysis; Fort Worth; Sacramento; Seattle; State laws; Uniform Vehicle Code; Urban areas; Traffic signals; Reviews; Violations; Safety campaigns; Accident rates; Variance analysis; Intersections; Jaywalking

AVAILABILITY: CFSTI as PB-187 519

HS-800 170 Fld. 1/3

## ANALYSIS OF MOTOR VEHICLE ACCIDENTS INVOLVING AIR FORCE PERSONNEL

by Nancy D. Bailey; James E. Hall

Caywood-Schiller, Associates, Chicago, Ill.

Jul 1969 186p

Contract FH-11-6969; PB-187 280

The objectives of the study were to present accident data in a readily understandable form, to concentrate on personal injury-producing accidents, and to determine what kind of

additional data are needed to study motor vehicle accidents. Some 40,000 accidents involving Air Force personnel from 1963-1968 served as the data base. Twenty-five findings are presented concerning the roles of time of accident, speed, defective road surfaces, drivers' educational status and attitudes, alcohol, traffic violations, type of vehicle involved, types of injury, cause of fatalities, vehicle defects, injury severity, motorcycle accidents, age factors, seat belts, crash helmets, and ejection.

Search terms: Military personnel; Accident factors; Accident data; Computers; Injuries; Data processing; Accident causes; Age factor in accidents; Injury severity; Sociological aspects; Highway characteristics; Accident analysis; Time factors; Speed; Road surfaces; Driver attitudes; Drinking drivers; Driver intoxication; Traffic violations; Fatalities; Defective vehicles; Ejection; Motor vehicle characteristics; Driver characteristics; Seat belts; Helmets; Motorcycle accidents; Pedestrian accidents

AVAILABILITY: CFSTI as PB-187 280

HS-820 059 Fld. 1/3

## HIGHWAY SAFETY PROGRAM PRIORITIES SEMINAR, FREDERICKSBURG, VIRGINIA, JULY 18-20, 1969. PROCEEDINGS, VOL. 5: SPEED-RELATED ACCIDENT COUNTERMEASURES AND THEIR PRIORITIES

National Highway Safety Bureau, Washington, D.C.

1969 83p 13 refs

Report no. PB-186 272

In discussing speed in relation to accidents, it is well to delineate three senses in which the term might be used: very high speed, near or over 100 mph, in which the speed factor dominates as a causative agent of accidents; excessive speed for conditions, ranging from zero to design speeds, a category encompassing many of the speeding citations issued in connection with accidents; and differential speed or speed gradients in the traffic stream, an overlapping set with both excessive and in-

adequate speeds, a factor implicit in other improper driving categories. The manner in which speed in these senses influences crash causation, the present countermeasures being taken to cope with its adverse effects, and alternatives worth exploring are discussed. Payoffs for countermeasures are included

Search terms: Speed; Speed patterns; Speed studies; Accident factors; Accident causes; Unsafe speed; High speed; Benefit cost analysis; Speed control; Speed regulators; Safety standards; Traffic law enforcement; Safety design; Injury protection; Impact protection

AVAILABILITY: CFSTI as PB-186 272

HS-820 063 Fld. 1/3

## HIGHWAY SAFETY PROGRAM PRIORITIES SEMINAR, FREDERICKSBURG, VIRGINIA, JULY 18-20, 1969. PROCEEDINGS, VOL. 9: DATA CONTRIBUTION TO COUNTERMEASURES

National Highway Safety Bureau, Washington, D.C.

1969 60p 6 refs

Report no. PB-186 276

Highway safety countermeasures are dependent upon adequate data concerning the basic elements contributing to cause and effect. A compelling need exists for the collection and analysis of data to measure the exposure of drivers, vehicles, and environments by class. The major contributors to accident and injury severity need to be identified statistically. Most countermeasure programs are based on state and local government records of drivers, vehicles, and accidents. These records are inadequate for highway safety research. It is recommended that the National Highway Safety Bureau should undertake a seven-point program for the improvement of accident data

Search terms: Accident data; Accident records; Driver records; Accident causes; Accident factors; Accident prevention; National Highway Safety Bureau; State government; Local government; Accident

### 1/3 Investigation &

### Records (Cont.)

HS-820-063 (Cont.)

research; Environmental factors;  
Data acquisition

AVAILABILITY: CFSTI as PB-186  
276

HS-006 434 Fld. 1/3

### REDUCING HIGHWAY SLAUGHTER

Anonymous

Published in *Medical World News* v10  
n35 p22-6, 28-9 (29 Aug 1969)

Doctors can play a role in reducing accidents by conducting further research on the effects of drugs and medical conditions that impair perception or driving performance, sudden death at the wheel, heart diseases, alcoholism, and suicides. The value of restraint systems is discussed, including seat belts, shoulder harnesses, and air bags. A restraint system for small children is needed. Better emergency medical services are also needed.

Search terms: Physicians; Accident prevention; Emergency medical services; Driver physical fitness; Driver intoxication; Drinking drivers; Restraint systems; Airbag restraints; Suicide; Fatalities from natural causes; Drugs; Alcoholism; Seat belts; Shoulder harnesses; Driver performance; Children; Heart diseases

HS-006 435 Fld. 1/3

### ROAD SAFETY

by H. Taylor

England. Road Research Lab., Crowthorne, Berks.

1969 6p 19 refs

The toll of road accident casualties in Great Britain tended to increase annually for many years but was slightly reduced in 1966. Accident data are presented for: pedestrians; young people; vehicle occupants; type of highway; driver behavior; visibility at night; skidding; and intersections.

Search terms: Accident factors;  
Accident data; Driver behavior;

Great Britain; Night vision; Pedestrian accidents; Fatalities; Intersections; Young adult drivers; Adolescent drivers; Skidding accidents; Injury factors; Children

AVAILABILITY: Corporate author

HS-006 436 Fld. 1/3

### THE SECOND COLLISION

by Donald F. Huelke

Published in *Traffic Safety* v67 n1  
p18-21, 40, 42 (Jan 1967)

In this analysis of the secondary collisions, ejection was found the leading cause of death. Fatalities caused by other structural parts of the automobile are discussed. A table showing driver fatalities not preventable if maximum restraints were used is included. Suggestions for reducing death and injuries include safer car design and more use of restraint systems.

Search terms: Secondary collisions; Injury prevention; Fatalities; Seat belt usage; Accident causes; Vehicle interiors; Ejection; Interior design; Restraint systems; Safety design

HS-006 437 Fld. 1/3

### THE SOLUTION TO THE PROBLEM OF REDUCING THE TRAFFIC ACCIDENT RATE TO A REASONABLE LEVEL

by Clarence Shak

Traffic Counseling, Inc., Honolulu,  
Hawaii

Jan 1969 28p

It is argued that traffic problems should be dealt with scientifically and that traffic courts serve little purpose beyond producing revenue. It is claimed that present traffic laws contribute to the high accident rate, that traffic control should not be a function of "criminal law," that speeding does not cause accidents, that motorists do not get due process of law, and that traffic citations are unconstitutional. It is suggested that drivers should be rated for their skills and should be issued a plastic license which would have to be inserted in the ignition to start the car.

Search terms: Accident prevention; Emotional appeals; Traffic courts; Driver skills; Traffic control; Traffic laws; Accident rates; Legal rights; Traffic violations; High speed; Accident causes; Constitutional law; Driver licensing; Ignition systems

AVAILABILITY: Corporate author

HS-006 438 Fld. 1/3

### THE WASHINGTON AREA MOTOR VEHICLE ACCIDENT COST STUDY

by H. A. Mike Flanakin

Published in *Traffic Engineering* v37  
n9 p45-8 (Jun 1967)

Reviews study report that reflects total direct costs, including loss of future earnings for persons killed or permanently injured in traffic accidents. Other factors considered in the study relate accidents and their costs to highway systems, highway classes, weather, lighting conditions, types of intersections, severity of accident. This study derived motor vehicle accident costs of \$81,870,000 for the 2 million people owning 771,000 vehicles in Metropolitan Washington, D.C.

Search terms: Costs; Traffic accident analysis; District of Columbia; Accident data; Data processing; Highway design; Accident factors; Fatalities; Injuries; Property damage

HS-006 439 Fld. 1/3

### MOST FREEWAY ACCIDENTS IN THROUGH LANES: STUDY

by B. F. K. Mullins; Charles J. Keese

Published in *Traffic Digest and Review* v11 n1 p28-31 (Jan 1963)

Research involving microfilms of 10,000 accident reports on 54 miles of Texas freeway is discussed. The need for improving freeway accident reporting; the importance of sight distance, entrance and exit ramp design, night visibility and fixed-object accidents are discussed in the recommendations. These studies of freeway accidents substantiate the evidence that full control of access materially reduces accidents, injuries and fatalities

### 1/3 Investigation & Records (Cont.)

HS-006-439 (Cont.)

Search terms: Accident reports; Freeways; Accident location; Accident prevention; Accident analysis; Highway design; Controlled access highways; Ramps; Visibility

HS-006 468 Fld. 3/11; 1/3

#### PEDESTRIAN ACCIDENTS

by F. Garwood; R. L. Moore

Published in *Traffic Engineering and Control* v4 n5 p274-6, 279 (Sep 1962)

Presented at the 3rd Annual Scientific and General Meeting of the British Academy of Forensic Sciences, July 27-29, 1962.

Various methods deal with the problem of pedestrian accidents. This paper describes some of the investigations designed to assist policy direction concerning uncontrolled pedestrian crossings, advantages of zebra crossings; increased pedestrian subways and bridges.

Search terms: Pedestrian accidents; Pedestrian safety; Zebra crossings; Great Britain; Cross walks; Traffic signals; Underpasses; Overpasses; Traffic actuated signals

HS-006 473 Fld. 5/4; 1/3

#### SAFER INSTRUMENT PANEL DESIGNS ARE PRODUCING FEWER LEG INJURIES IN VEHICLE ACCIDENTS

by Alan M. Nahum; Arnold W. Siegel; Philip V. Hight; Samuel H. Brooks

Published in *SAE Journal* v77 n7 p32-6 (Jul 1969)

Injuries to the lower extremities of front-seat occupants have been reduced by improvements in instrument panels of the new domestic cars. These improvements include removing or flattening objects and control knobs, relocating or removing underlying structure that added rigidity to the panel, and using materials—primarily sheet metals—that have excellent energy absorption properties. Some case reports of leg injuries are given.

Search terms: Injury prevention; Interior design; Knee injuries; Leg injuries; Energy absorption; Instrument panels; Case reports

HS-006 492 Fld. 1/3; 5/2

#### TYPES, CAUSES AND RESULTS OF SCHOOL BUS ACCIDENTS

by Paul T. Stewart

National Safety Council Chicago, Ill. School Transportation Section

11 Oct 1966 10p

Prepared for presentation at Assoc. of School Business Officials Conference, Atlantic City, N. J.

Analyzes types and results of school bus accidents comparing injury and fatality rates for pupils with rates for other persons. Legislation concerning safety in the construction of motor vehicles is not the complete answer. Improvement in attitudes and skills to control factors contributing to accidents would reduce the number of accidents. The need for better accident reporting is stressed.

Search terms: School buses; School traffic safety; Injuries; Fatalities; School bus passengers; Accident prevention; School bus drivers; Accident reports; Bus accidents; Accident causes

AVAILABILITY: Corporate author

HS-006 493 Fld. 1/3; 3/0

#### THE ROLE OF HUMAN FACTORS IN ACCIDENT PREVENTION

by Frank Freeman; Charles E. Goshen; Barry G. King

Operations Research, Inc., Silver Spring, Md.

119p 78 refs

Contract SAPH-73670

Concerned with human factors which influence the liability of man to accident involvement of all types, this study covers several topics of value to the highway safety effort: accident prevention programs, the role of human factors in accidents by age groups, methods of data collection in accident research. The final section of the report presents a national philosophy of safety: that the principal safety effort should be directed toward the individual and his safety philosophy as it applies to both him and to the public.

Search terms: Accident prevention; Accident proneness; Attitudes; Safety campaigns; Data acquisition;

Highway safety; Driver behavior; Pedestrian behavior; Fatalities; Public transportation; Epidemiology; Age factor in accidents; Accident causes; Physicians; Physical fitness

AVAILABILITY: Public Health Service, Washington, D. C. 20201

HS-006 494 Fld. 1/3; 4/7; 2/9

#### STUDY OF AUTOMOBILE ACCIDENTS THROUGH DIGITAL SIMULATION

by A. D. St. John

Midwest Research Inst., Kansas City, Mo.

1968 11p 8 refs

Grant PHS-AC-00106

Report no. SAE-680173

Presented at SAE's Analysis and Control of Traffic Flow Symposium, Detroit, Jan 9-10, 1968 and published in the CONFERENCE PROCEEDINGS, p66-76.

Simulation has been developed for following, overtaking, and merging on freeways. Parameters were chosen to correspond with human factor data and traffic measurements. The purpose was to study freeway accidents. Results imply that risks are taken with fairly high frequency while associated accidents occur at low frequency and require a simultaneous precipitating event. Some guides to the vulnerability of driver types and to the accident potentials of frequently occurring situations are given.

Search terms: Traffic flow; Computerized simulation; Accident causes; Car following; Merging traffic; Mathematical models; Overtaking (driving); Driver behavior; Driving tasks; Freeways; Risk taking; Driving simulation; Traffic simulation; Driver characteristics

AVAILABILITY: SAE

HS-006 495 Fld. 1/3; 2/9

#### RELATIONSHIP OF ACCIDENT RATES AND ACCIDENT INVOLVEMENTS WITH HOURLY VOLUMES

by David W. Gwynn

### 1/3 Investigation & Records (Cont.)

HS-006-495 (Cont.)

Published in *Traffic Quarterly* v21  
p407-18 (Jul 1967) 6 refs

The relationship of accident rate to hourly traffic volume was studied in Newark. During the study period there were 1,305 accidents, of which four produced fatalities; there were 861 persons injured. It was concluded that the higher total accident rates occur in the low and high hourly volume ranges; the passenger car accident rates approximate the same trend as the total accident rates; the truck accident rates follow no set trend but fall below passenger car accident rates; injury rates were similar to total accident rates; for the entire range of hourly volumes, trucks are involved in lower and passenger cars higher accident percentages than their percent of the traffic stream.

Search terms: Truck accidents; Fatalities; Injury factors; Accident rates; Traffic volume; Newark; Accident investigation; Accident studies; Accident factors; Automobile accidents

HS-006 509 Fld. 2/9; 1/3

#### SIMPLE RAMP METERING DEVICE REDUCES REAR-END COLLISIONS

by Joe M. Thomas

Published in *Traffic Engineering* v19  
n7 p22-5 (Jun 1969)

Rear-end collisions on an Atlanta freeway have been reduced almost 90% over a 12-month period by ramp metering. Signs were tried but were not sufficiently observed and were replaced by traffic signals, detectors, and signs. In addition to the accident reduction, volume was increased. The signal has been well observed.

Search terms: Access control; Ramps; Accident prevention; Detectors; Signs (displays); Traffic volume; Rear end collisions; Atlanta; Freeways; Accident rates; Driver behavior; Traffic control devices

HS-006 542 Fld. 5/17; 5/2; 5/20; 1/3  
1968 ANALYSIS OF MOTOR  
CARRIER ACCIDENTS INVOLVING  
VEHICLE DEFECTS OR MECHANICAL FAILURE

Bureau of Motor Carrier Safety,  
Washington, D.C.

Aug 1969 21p

Motor carriers in interstate commerce must report accidents resulting in a fatality, personal injury, or \$250 property damage. This report is concerned with 2,419 accident reports indicating vehicle defect or mechanical failure, 5.3% of the accidents reported. Property carriers accounted for 2,379 accidents with 47 fatalities, 1,009 injuries, and almost \$7 million property damage. Passenger carriers accounted for 40 accidents with two fatalities, 121 injuries, and \$81,871 property damage. Report is in two sections for buses and trucks, analyzing types of failures and defects for each.

Search terms: Accident data; Defective vehicles; Accident reports; Fatalities; Injuries; Truck accidents; Bus accidents; Failures; Property damage; Costs; Accident causes; Cargo transportation; Motor carriers; Fires

AVAILABILITY: Corporate author

HS-006 544 Fld. 5/20. 1/3

#### TRUCK FLEET ACCIDENT INVESTIGATION. A MANUAL FOR INVESTIGATION OF ACCIDENTS INVOLVING MOTOR VEHICLES OF TRUCK FLEETS

by Neill Darmstadter, ed.

American Trucking Associations, Inc.,  
Washington, D.C. Dept. of Safety  
1962 23p

Accident investigation should include determining what happened, why, and what can be done about it. This manual, meant for guidance of truck fleet safety personnel, puts major emphasis on accident prevention through investigation so that corrective measures may be taken for better driver training, better policy, maintenance, discipline, and cooperation with authorities. Accurate determination of accident liability is vitally important, whether this part of the investigation is done by fleet personnel or by the insurance carrier. Manual outlines what to investigate, how to deal with witnesses, how to prepare the investigation report.

Search terms: Accident investiga-

tion; Fleets (motor vehicles); Accident prevention; Accident responsibility; Safety programs; Truck accidents; Truck drivers; Driver improvement; Liability; Insurance; Accident reports; Legal responsibility; Legal factors; Manuals

AVAILABILITY: Corporate author  
\$1.00

HS-006 545 Fld. 5/20; 1/3; 5/5

#### A PRELIMINARY REPORT ON TRUCKS IN INJURY PRODUCING ACCIDENTS

by Arthur Stern

Cornell Aeronautical Lab., Inc.,  
Buffalo, N.Y. Automotive Crash  
Injury Research

Jul 1966 28p 7 refs

Grant PHS-AC 00101

Report no. CAL-VJ-1823-R21

Data on 243 truck accidents are reviewed. The frequency of door openings in recent model trucks was found similar to door opening frequency in pre-1956 passenger cars, and double that of 1963 cars. The frequency of truck driver ejection was double that of recent model auto drivers. Rate of dangerous or fatal injury among ejected truck drivers was four times as high as among those who remained in the truck, underscoring the importance of restraint systems. While overall comparison cannot be made of injury frequency of truck and auto drivers, it was found that if injured, truck drivers sustained 32% more injuries than auto drivers. Abdominal injury involvement was substantially higher.

Search terms: Accident data; Truck drivers; Truck accidents; Ejection; Restraint systems; Injury severity; Injury factors; Abdomen injuries; Doors; Automobile models; Fires; Load shifting; Seat belt usage; Case reports; Fatalities

AVAILABILITY: Corporate author

HS-800 180 Fld. 1/2; 1/3

#### ACCIDENT PATHOLOGY, REGIS- TRY AND TRAINING. IN DEPTH INVESTIGATION OF MOTOR VE- HICLE FATALITIES. FINAL REPORT

by Russell S. Fisher

### 1/3 Investigation & Records (Cont.)

HS-800-180 (Cont.)

Maryland Medical-Legal Foundation, Inc., Baltimore, Universities Associated for Research and Education in Pathology, Inc., Bethesda, Md.

3 Sep 1969 138p 18 refs  
Contract FH-11-6595

Report for the period 1 Jul 1968 to 31 Aug 1969.

A study of 80 crashes resulting in 92 motor vehicle fatalities was undertaken to investigate the following: the accident scene including estimated speed of the vehicle; the nature of the victim's injuries with emphasis on vehicle items judged to have caused fatal injury; the presence of alcohol, drugs, and other chemical agents in the victim and crash survivors; mechanical and design defects contributing to the crash; and psychological factors in victims which may have contributed to the crash. The sample was too small to support formal conclusions, but preliminary results show: alcohol and speed continue the major identifiable causes of the fatal crash (54 cases); 11 cases were caused by poor driving judgment; roadway or mechanical defects caused 8 crashes; front-seat occupants are susceptible to head, neck, and trunk injuries when not adequately restrained; physical impairment and drug usage were not significant as crash causes; frequency of significant psychopathology was impressive and warrants further study.

Search terms: Fatalities; Accident analysis; Accident location; Speed; Injuries; Injury factors; Drinking drivers; Drugs; Chemical analysis; Carbon monoxide; Defective vehicles; Psychological factors; Driver performance; Highway characteristics; Restraint systems; Handicapped drivers; Careless driving; Secondary collisions; Accident causes; Driver intoxication; Questionnaires; Autopsies; Head injuries; Neck injuries; Age factor in accidents; Sex factor in accidents; Accident investigation training; Forensic medicine

AVAILABILITY: CFSTI

HS-006 551 Fld. 1/3

#### FATAL TRAFFIC ACCIDENTS IN BRISBANE FROM 1935 TO 1964

by J. I. Tonge; M. J. J. O'Reilly; A. Davison; E. H. Derrick

Published in *Medical Journal of Australia* v2 n21 p811-20 (21 Nov 1964)

Investigation of 2,214 fatalities is reported. Victims are classified as pedestrians, passengers, drivers, motorcyclists, bicyclists, and others. Distribution of fatalities according to age, sex, time of day, type of injury, blood alcohol levels, ejection from vehicle is included. Types of injuries are detailed; head injuries were most common, followed by chest, abdominal, and spinal injuries. Contributing causes of death are discussed.

Search terms: Brisbane; Fatalities; Pedestrian accidents; Passengers; Drivers; Motorcycle accidents; Bicycle accidents; Age factor in accidents; Sex factor in accidents; Time factors; Injury factors; Blood alcohol levels; Ejection; Head injuries; Chest injuries; Abdomen injuries; Spinal injuries; Accident data; Accident studies; Autopsies

HS-006 558 Fld. 2/4; 1/3; 3/12

#### ROAD SURFACE CHARACTERISTICS AND ACCIDENTS

by Barbara E. Sabey

Published in *Medicine, Science, and the Law* v3 p500-11 (Oct 1962) 6 refs

Examples are given in three fields of study to illustrate how road surface characteristics play an important part in contributing to accidents: skidding resistance of roads, visibility requirements at night, and riding quality of road surfaces. Police accident reports and study at the scenes of accidents have provided a basis on which to work. Accidents can be reduced by correcting roads which have been polished and slippery and by improving street lighting. Improving the riding quality of roads gives rise to increases in the speed of traffic and may increase the accident rate. The study was made in Great Britain.

Search terms: Pavement skidding characteristics; Accident prevention;

Accident causes; Visibility; Night driving; Accident reports; Accident studies; Road surfaces; Skidding accidents; Street lighting; High speed; Accident rates; Great Britain; Wet road conditions; Skid resistance

HS-006 565 Fld. 2/9; 3/12; 1/3

#### IMPROVED SIGNAL VISIBILITY REDUCES ACCIDENTS

by Arthur L. Kassan; Timothy F. Crowder

Published in *Traffic Engineering* v19 n7 p42-4 (Jun 1969)

Accident history comparison for 68 Los Angeles intersections indicates that improvement in signal visibility reduces the most predominant types of intersection accidents and thus has a high payoff in relation to the relatively low cost of improvement. Signal modernization cost less than \$5,000 per intersection.

Search terms: Benefit cost analysis; Los Angeles; Accident rates; Visibility; Traffic signals; Accident prevention; Costs; Intersections

HS-006-611 Fld. 1/3; 2/1

#### SINGLE-VEHICLE ACCIDENTS IN RELATION TO STREET FURNITURE

by R. L. Moore

Published in *Traffic Engineering and Control* v4 n7 p410-1, 413, 415, 417 (Nov 1962)

This study is chiefly concerned with street furniture as an obstacle to vehicles which are involved in fixed object collisions, and particularly with the problem of street-lighting columns. Lighting columns must be capable of shearing at the base to minimize the danger in single vehicle accidents. It is suggested that where accidents occur frequently, a special study should be made of the visual pattern presented to drivers. Data on fixed-object collisions in Great Britain are given. Impact tests with various lighting columns are described.

Search terms: Lighting design; Single vehicle accidents; Poles (supports); Hazards; Great Britain; Breakaway bases; Impact tests; Highway lighting; Accident location; Hazards; Accident data



## 1/3 Investigation &

### Records (Cont.)

HS-006 612 Fld. 1/3

#### LONDON-BIRMINGHAM MOTORWAY ACCIDENTS

by R. F. Newby; H. D. Johnson

Published in *Traffic Engineering and Control* v4 n10 p550-5 (Feb 1963)

Police forces responsible for patrolling the London-Birmingham motorway have provided the Road Research Laboratory with a special report of each accident occurring on it. Information is given on accident rates and types, rear end collisions, night accidents, bridges and other accident locations, median crossing and running off the road accidents, and vehicle miles.

Search terms: Great Britain; Freeways; Accident rates; Controlled access highways; Accident factors; Accident data; Night driving; Visibility; Accident location; Rear end collisions; Bridges (structures); Accident types; Vehicle miles; Single vehicle accidents; Median encroachments

HS-006 617 Fld. 3/1; 1/3

#### STUDIES OF TRAFFIC DEATHS POINT TO DRINKING DRIVER

Anonymous

Published in *Automotive News* p29, 32 (26 Sep 1966)

What really causes traffic deaths and injuries—vehicles, drivers, or highways? In this assessment of the causes of highway fatalities, the automotive industry suggests that all factors be examined. From the information already available, the bulk of non-pedestrian fatalities can be attributed to speeding, drinking, or carelessness rather than mechanical defects of the automobile.

Search terms: Fatalities; Injuries; Accident causes; Defective vehicles; Accident factors; Drinking drivers; Highway safety; Careless driving; Driver intoxication

HS-006 662 Fld. 1/3; 5/3

#### MOTORCYCLE ACCIDENTS—1968

by Dennis Poleck

Published in *Traffic Safety* v69 n11 p12-4, 35-6 (Nov 1969)

Figures are given for motorcycle accidents and their accident rate compared to that of motor vehicles. Data are included on motorcycle accident severity; types of accidents; causes; time of day, week, and month; roads and weather; age, sex, residence of driver; driver experience; type of injury; protective apparel; and characteristics of the motorcycle.

Search terms: Motorcycle accidents; Motor vehicle accidents; Accident rates; Accident causes; Accident factors; Accident types; Time factors; Environmental factors; Age factor in accidents; Sex factor in accidents; Driving experience; Injury factors; Protective clothing; Motorcycle characteristics; Accident severity

HS-006 663 Fld. 1/3; 3/11

#### PEDESTRIAN ACCIDENTS: WHO, WHEN, WHERE, HOW

Idaho. Dept. of Highways, Boise  
May 1964 14p

Analysis of reports for 504 pedestrian accidents in Idaho provides data on pedestrian problems and assists in planning pedestrian safety improvements. It was concluded that most pedestrian accidents occurred in daylight during good weather; many involved young adult drivers; most victims were children, but the accidents did not take place close to schools; traffic signals did not provide adequate protection.

Search terms: Idaho; Pedestrian accidents; Accident causes; Accident factors; Accident data; Pedestrian safety; Accident location; Children; Young adult drivers; Traffic signals; Environmental factors; Age factor in accidents

AVAILABILITY: Corporate author

HS-810 091 Fld. 2/0; 1/3

#### REMARKS AT THE 48th ANNUAL CONFERENCE OF THE WESTERN ASSOCIATION OF STATE HIGHWAY OFFICIALS, PHOENIX, ARIZONA

by Francis C. Turner

Federal Highway Administration, Washington, D.C.

3 Jun 1969 13p

Progress and needs in the highway safety field are discussed, especially the accomplishments of state programs. Especially needed are a system for locating accident sites, a good traffic records system, a procedure for identifying hazards, a system for ranking proposed safety projects, and a before-and-after evaluation program.

Search terms: Highway safety; Accident prevention; Safety programs; State government; Accident location; Hazards; Benefit cost analysis; Traffic records; Accident records

AVAILABILITY: Federal Highway Administration, Washington, D.C. Office of Public Affairs

HS-006 716 Fld. 1/3

#### BICYCLE ACCIDENTS TO SCHOOL AGED CHILDREN

by Frank J. Vilardo; Jane H. Andersen

National Safety Council, Chicago, Ill.

Sep 1969 109p 8 refs  
Report no. 169

The purpose of this study was to obtain more detailed information about bicycle accidents among school aged children so that meaningful countermeasures could be developed. Additional objectives were: to evaluate the criticality of possible accident factors and to relate accident information to exposure or usage data to define the bicycle accident problem more clearly.

Search terms: Bicycle accidents; Children; Accident data; Questionnaires; Traffic violations; Accident location; Accident causes; Age factor in accidents; Accident risks; Accident factors; Sex factor in accidents; Fatalities; Risk taking

AVAILABILITY: Corporate author

HS-006 717 Fld. 1/3

#### O.T.A. STUDY WEEK: GENERAL REPORT ON THEME 4. VARIATIONS IN THE PATTERN OF ACCIDENT RATES IN DIFFERENT COUNTRIES AND THEIR CAUSES



### 1/3 Investigation &

HS-006-717 (Cont.)

### Records (Cont.)

by R. J. Smeed

Published in *Traffic Engineering & Control* v10 n7 p364-71 (Nov 1968)  
14 refs

It is concluded from analysis of 16 studies of accident rates that the percentage change in motor vehicle registration over a decade has been fairly constant; casualty and fatality rates have increased; a formula relating the number of road deaths to the number of motor vehicles and persons remains useful; an important reason for the decline in casualties per motor vehicle is the lessening number of accident-prone vehicles, especially motorcycles; erratic changes in accident rates are due to abnormal weather, changes in economic prosperity, and changes in types of vehicles; and trends in accident rates can generally be understood, although further research is needed.

Search terms: Accident rates; International aspects; Fatalities; Motor vehicle registration; Accident causes; Accident factors; Motorcycle accidents; Environmental factors; Motor vehicle characteristics; Accident studies; Economic factors; Weather; Accident data; Statistical analysis

HS-006 718 Fld. 1/3

VARIATIONS IN THE PATTERN OF ACCIDENT RATES IN GREAT BRITAIN OVER THE LAST 10 YEARS. THEME 4. VARIATIONS IN THE PATTERN OF ACCIDENT RATES IN DIFFERENT COUNTRIES AND THEIR CAUSES

by F. Garwood; J. M. Munden

England Road Research Lab., Crowthorne, Berks.

1968 7p

Reprinted from OTA 9th International Study Week in Traffic and Safety Engineering documentation, Sep 1968.

Some of the relevant statistics showing variations in road accidents in Great Britain are given. It is concluded that the 70 mph speed limit continues to show a beneficial effect on safety; casualty rates per unit

distance travelled are generally rising for individual classes of road user; most age groups of pedestrian casualties are showing falling rates when related to population and motor traffic; the proportion of young motorcyclist casualties is increasing; night accidents are increasing; and interpretation of the accident pattern must take into account the composition of traffic.

Search terms: Accident data; Great Britain; Accident factors; Accident rates; Vehicle miles; Fatalities; Traffic characteristics; Speed limits; Age factor in accidents; Motorcycle accidents; Night driving; Pedestrian accidents; Accident analysis

AVAILABILITY: Corporate author

HS-006 728 Fld. 2/8; 1/3

AUTOMATED ALLOCATION OF TRAFFIC ENFORCEMENT SERVICES

by Edwin J. Mendozzi

Published in *Law & Order* v17 n6 p84-6, 90, 92 (Jun 1969)

Describes how a small Rhode Island town coped with increased traffic flow through a suburban community without devoting a disproportionate share of police resources to this effort. A comprehensive traffic accident prevention program was developed, taking into consideration staff training, optimum manpower utilization, public education, community relations, and information services.

Search terms: Rhode Island; Traffic flow; Police traffic services; Accident prevention; Manpower utilization; Public relations; Safety campaigns; Suburban areas

HS-006 755 Fld. 4/3; 1/4; 1/3

EVALUATION OF CRITERIA FOR SAFETY IMPROVEMENTS ON THE HIGHWAY

by Roy E. Jorgensen; John C. Laughland

Published in *Traffic Engineering* v37 n11 p33-8 (Aug 1967)

Methods are discussed for the identification of hazardous locations, the forecasting of accident reduction,

cost-effectiveness analysis, and better highway accident records systems.

Search terms: Accident location; Accident prevention; Hazards; Forecasting; Benefit cost analysis; Accident records; Highway research; Accident rates

## 1/4 LOCATIONS

HS-004 532 Fld. 1/4

DELAWARE. ACCIDENT SUMMARY  
1963-1965  
Delaware. State Highway  
Dept., Dover

[1968 ?]

Summarizes the 3-year accident experience of each State maintained road in Delaware by road section and by road type. Analyzes high frequency accident locations as an initial step in the implementation of the spot improvement program. Concludes that the motor vehicle accident death rate will become more prominent, unless drastic improvement in highway safety is accomplished soon.

Search terms: Accidents, Statistics, Statistical analysis, Motor vehicle accidents, Accident location, Delaware\*, Fatalities, Injuries

AVAILABILITY: From corporate author

HS-004 576 Fld. 1/4

DRIVEWAY ACCIDENTS IN  
SAN FRANCISCO  
by William Marconi

Published in Traffic Engineering v37 n4 p45-47  
(Jan 1967)

Analyzes accident conditions, driver action, (entering or leaving), type and size of driveway. Finds San Francisco's driveway accident rate of 1.3% of total traffic accidents compares closely with national urban average of 1.9%. Concludes leaving driveway is 3 times as hazardous as entering.

Search terms: Driveways\*, Accident prevention, Statistical analysis, Accident rates, San Francisco\*

HS-004 684 Fld. 1/4

PHOTOGRAPHIC MAPPING OF ACCIDENT SITES

by J. D. Moreland,  
M. M. Miller

Published in Police Journal  
v36 n2 p57-64 (Feb 1963)  
15 refs

A camera with a wide-angle lens is hung vertically from the top of an inclined telescopic mast mounted on a police vehicle. An accident scene can be photographed more quickly and safely than it can be measured with tape. The mast can be extended to a height of 42 feet so that an area of sixty square feet can be covered in one exposure. Acceptability of such photographs as evidence is also discussed.

Search terms: Accident investigation, Accident location, Photography, Evidence\*, Police

HS-004 744 Fld. 1/4

HOW DANGEROUS ARE RAILROAD  
GRADE CROSSINGS?  
by Charles W. Prisk

Published in Traffic Safety  
v69 n1 p10-12 (Jan 1969)

It is not economically feasible to eliminate the nearly 225,000 grade crossings in the United States, but the Department of Transportation has an 11-point program to improve them, ranging from the collection and analysis of data to physical improve

ments.

Search terms: Railroad grade crossings\*, Accident location, Safety programs, Data acquisition, Data processing, Safety research, Highway safety, Department of Transportation\*

HS-004 927 Fld. 1/4, 2/9

ACCIDENTS AT RURAL THREE-  
WAY JUNCTIONS

by M. G. Colgate, J. C. Tanner  
Road Research Lab.,  
Crowthorne, Berks. (England)

1967 33p 9 refs  
Report no. RRL-LR-87

This report deals with the effect of layout and traffic flow on the frequency of 'junction' type accidents. Results confirm those of earlier investigations: (1) frequency varies with square root of product of the two flows; (2) accident rates for the right corner are highest at left-hand splays, while rates for left corners are highest at square junctions.

Search terms: Accident rates, Accident locations, Rural areas, intersections, Turning (direction change), Highway design, Mathematical analysis, Turning left, Traffic flow, Traffic control devices, Statistical analysis, Turning right

AVAILABILITY: From corporate author

HS-005 015 Fld. 1/4, 1/3/2/9

POLICE USE OF ACCIDENT AND  
VIOLATION RECORDS IN  
QUEENSLAND FOR ACCIDENT  
REDUCTION AND DRIVER  
IMPROVEMENT PURPOSES  
by R. A. Rice, J. I. Tindall

Published in Australian Road Research Board Proceedings of the Third Conference, Sydney v3 pt1 p604-22 (1966)  
5 refs

Report no. Paper-265  
Includes discussions with  
R. D. Gossip, G. Bell, and  
N. S. Guerin.

To study hazardous locations so that engineering and/or enforcement measures could be taken, an Accident Analytical Section was set up by the Queensland Police Department. The Section collects traffic accident data and traffic violation reports storing the data on punched cards. This paper details operations, data summaries, etc. genera-

## 1/4 Locations (Cont.)

HS-005-015 (Cont.)

ted by the system.

Search terms: Accident locations, Automatic data processing, Statistical analysis, Driver improvement, Accident prevention, Australia\*, Accident analysis, Driver records, Data reduction, Law enforcement, Violations

HS-005 056 Fld. 1/4, 1/3

### ACCIDENT DEBRIS AND REPORTED ACCIDENTS AT ROUNDABOUTS

by C. R. Faulkner

England. Road Research Lab., Crowthorne, Berks.

1968 18p

Report no. RRL-LR-202

Relation between "debris" accidents and reported "injury" accidents was studied. A fair prediction of injury accidents (but not a complete record) could be made by inspecting debris (fragments of colored plastic or glass found at collision sites). These rates were about 10 times the reported injury rates.

Search terms: Accident rates, Traffic circles, Forecasting, Great Britain\*, Taillights, Brake lights, Glass, Plastics, Accident location

AVAILABILITY: Corporate author

HS-005 100 Fld. 1/4

### DEATHS IN SUBURBIA

by Harvey Kravitz, Alvin Korach

Published in *Clinical Pediatrics* v5 n5 p266-7 (May 1966)

Examines driveway accidents involving children. Such accidents are of two types: children playing with cars and accidentally starting them and, the more usual type, children hit by persons backing out of a driveway. Pediatricians are urged to encourage safety campaigns, watch out for children when making house calls, and park facing outwards. It is suggested that driveways should be built curved so that children could be seen better, keys should not be left in

ignition, and starting a car should not be so easy a small child can do it.

Search terms: Accident location, Children, Safety measures, Fatalities, Driveways\*, Safety design, Ignition systems, Parking

HS-005 143 Fld. 1/4; 1/3

### THEY MARK THE WAY

by Marjie Mugno

Published in *Texas Highways* v15 n11 p3-9 (Nov 1968)

Accident investigation team collects data to help make highways safer. Accidents occurring at particular locations are studies from automatic data tabulations to find a common factor in order to correct the problem.

Search terms: Accident location; Accident investigation; Accident analysis; Accident records; Automatic data processing; Accident causes; Hazards

HS-005 258 Fld. 1/3

### BRIDGE ACCIDENTS ON RURAL HIGHWAYS IN NEW ZEALAND: ANALYSIS AND APPRAISAL

by J. V. Brown; J. Foster

Published in *Australian Road Research Board Proceedings of the Third Conference*, Sydney v3 pt1 p638-46 (1966)

Report no. Paper-288

Study was carried out in connection with an investigation of the design of bridge-approaches. Statistical analysis of variance was the technique used. The accident factors, in order of significance, were found to be: night, width ratio, right curved alignments, left curved alignments, and straight alignments. Recommendations for bridge safety are made.

Search terms: Accident factors; Variance analysis\*; Statistical analysis; Night driving; Bridge design; Bridge approaches\*; Accident analysis; New Zealand\*; Single vehicle accidents

HS-005 322 Fld. 1/3; 1/4

### WATERLOO, NEBRASKA, PUBLIC SCHOOL BUS, UNION PACIFIC

### RAILROAD COMPANY FREIGHT TRAIN ACCIDENT WATERLOO, NEBRASKA, OCTOBER 2, 1967. HIGHWAY-RAILROAD ACCIDENT REPORT

National Transportation Safety Board, Washington, D.C.

18 Sep 1968 66p

Report no. SS-R/H-3

Describes an accident in which four children were killed and nine injured. Bus driver was driving into the sun without use of sunglasses or the sun visor and did not see the train. Train horn was sounding, bell ringing, and headlight burning, but bus driver and children did not hear it. The grade crossing was unprotected.

Search terms: Accident reports; School buses; Railroad grade crossings\*; Bus drivers; Glare; Visibility; Warning systems; Headlights; Hearing\*; Fatalities; Children; Crash injuries; Accident causes

AVAILABILITY: Corporate author

HS-005 324 Fld. 2/4; 1/4

### STATES ATTACK HIGHWAY ACCIDENTS

Anonymous

Published in *Engineering News-Record* p9-11 (28 Jul 1966)

Describes spot improvement programs to correct high hazard locations. Accident rates have been reduced by improvements at intersections and other hazardous sites.

Search terms: Accident rates; Accident location; Accident prevention; Hazards; Highway engineering; Highway maintenance; Intersections; Safety engineering

HS-005 548 Fld. 2/4; 1/4

### PAVEMENT GROOVING ON HIGHWAYS

by Eugene E. Farnsworth

California. Div. of Highways, Sacramento

1969 14p 2 refs

Accident rates on concrete highways (especially curves) during rainy weather were unusually high. Pavement grooving was applied to the sur-

## 1/4 Locations (Cont.)

### HS-005-548 (Cont.)

face of the roadway in an attempt to reduce the number of accidents. Before and after accident studies have shown the benefit of pavement grooving.

Search terms: Skidding accidents; Grooving\*; Accident rates; Accident prevention; Wet skidding; California\*; Accident location; Road curves; Concrete pavements

AVAILABILITY: Paper 25 in NASA's *Pavement Grooving and Traction Studies* (N69-20451) p411-24 (HS-005 522)

### HS-820 045 Fld. 1/4

#### HIGHWAY SAFETY PROGRAM MANUAL. VOLUME 9. IDENTIFICATION AND SURVEILLANCE OF ACCIDENT LOCATIONS

National Highway Safety Bureau, Washington, D. C.

Jan 1969 43p 9 refs

One of 17 volumes, two of which (vols. 12 and 13) are as yet unissued (see HS-820 036 to HS-820 050).

The complete manual supplements the Highway Safety Program Standards and presents additional information to assist State and local agencies to implement their highway safety programs. This volume provides guidance to those concerned with Loss Prevention Analysis Programs whose specific objectives include identifying those locations on streets and highways where accident loss experience is unusually high and where corrective measures are relatively straightforward, providing appropriate measures to reduce accidents and or their severity, evaluating the effectiveness of accident reduction measures and programs, and continuing surveillance of highway systems to help reduce the number of accidents and their severity.

Search terms: Highway safety; Safety programs; State government; Local government\*; Accident location; Accident prevention; Accident surveillance; Accident reports;

### Accident investigation

AVAILABILITY: Federal Highway Administration, Washington, D.C. 20591, Attn: Records Management Branch. \$2.00

### HS-005 983 Fld. 1/3; 1/4; 5/2; 5/20

#### MOTOR CARRIER ACCIDENT INVESTIGATION. JULIO M. PUENTE-ACCIDENT-MAY 30, 1967-NEAR DWIGHT, ILLINOIS

Bureau of Motor Carrier Safety, Washington, D.C.

1967 7p  
Report no. 67-2

One fatality, 19 injuries, and \$1,600 property damage resulted when a pickup truck overturned. The accident was attributed to tire failure resulting from underinflation.

Search terms: Fatalities; Injuries; Tire failures\*; Accident causes; Property damage; Accident location; Truck accidents; Inflation pressure; Accident investigation

### HS-005 984 Fld. 1/3; 1/4; 5/20

#### MOTOR CARRIER ACCIDENT INVESTIGATION. C & S EXPRESS INC.-ACCIDENT-JUNE 13, 1967-UPPER MARLBORO, MD.

Bureau of Motor Carrier Safety, Washington, D.C.

1967 11p  
Report no. 67-3

One fatality and approximately \$8,000 property damage resulted when a tractor-semitrailer failed to stop behind halted traffic. The accident was attributed to brake failure.

Search terms: Tractor-semitrailer\*; Fatalities; Accident causes; Brake failures\*; Property damage; Accident location; Truck accidents; Accident investigation; C & S Express, Inc.\*

### HS-005 985 Fld. 1/3; 1/4; 5/20

#### MOTOR CARRIER ACCIDENT INVESTIGATION. PETROLEUM TRANSIT CORPORATION OF SOUTH CAROLINA-ACCIDENT-JUNE 23, 1967-HARDEEVILLE, S.C.

Bureau of Motor Carrier Safety, Washington, D.C.

1967 9p  
Report no. 67-4

Ten fatalities, injury to one, and approximately \$11,000 property damage resulted from an intersection collision involving a tractor-semitrailer and a station wagon. The accident was attributed to the driver of the station wagon who failed to heed the "stop" sign. Excessive speed of the truck was a contributing factor.

Search terms: Fatalities; Injuries; Property damage; Accident causes; Accident location; Tractor-semitrailer\*; Automobiles; Unsafe speed; Driver license suspension; Violations; Stop signs\*; Intersections; Side impact collisions; High speed; Accident investigation; Petroleum Transit Corp. of South Carolina\*

### HS-005 986 Fld. 1/3; 1/4; 5/20

#### MOTOR CARRIER ACCIDENT INVESTIGATION. AERO TRUCKING, INC.-ACCIDENT-JUNE 18, 1967-LUKE, MD.

Bureau of Motor Carrier Safety, Washington, D.C.

1967 9p  
Report no. 67-5

Three fatalities, injuries to five, and approximately \$11,300 property damage resulted when a tractor-semitrailer ran out of control down a mountain grade and collided with an automobile. The accident was attributed to the truck driver who disregarded numerous warning and instructional signs.

Search terms: Fatalities; Injuries; Property damage; Tractor-semitrailer\*; Accident causes; Accident location; Traffic signs; Unsafe speed; Driver performance; Warning systems; Accident investigation; Collisions (accidents); Careless driving; Truck drivers; Truck accidents; Motor vehicle control; Road grades; Aero Trucking, Inc.\*

### HS-005 987 Fld. 1/3; 1/4; 5/20

#### MOTOR CARRIER ACCIDENT INVESTIGATION. BUTLER & COMPANY, INC.-ACCIDENT-JUNE 25, 1967-NEAR EUPORA, MISS.

#### 1/4 Locations (Cont.)

HS-005-987 (Cont.)

Bureau of Motor Carrier Safety,  
Washington, D.C.

1967 9p

Report no. 67-6

Five fatalities, injuries to three, approximately \$5,500 property damage resulted when a tractor-semitrailer failed to stop behind halted traffic. The accident was attributed to the truck driver who had loss of vision in one eye and a poor driving record.

Search terms: Fatalities; Injuries; Property damage; Accident causes; Accident location; Tractor-semitrailers\*; Driver records; Vision disorders\*; Driver license suspension; Head on collisions; Truck accidents; Truck drivers; Accident investigation; Butler & Co., Inc.\*

HS-005 988 Fld. 1/3; 1/4; 5/2

**MOTOR CARRIER ACCIDENT INVESTIGATION. GRAY LINE SIGHTSEEING TOURS, INC.—ACCIDENTS—JULY 31, 1967—STUART, FLA.**

Bureau of Motor Carrier Safety,  
Washington, D.C.

1967 7p

Report no. 67-7

Injury to 21 and approximately \$35,000 property damage resulted from a bus's overturning after skidding out of control. The accident was attributed to unsafe speed for driving conditions which included wet road conditions and worn tires.

Search terms: Injuries; Property damage; Buses (vehicles); Wet road conditions; Unsafe speed; Tire-road conditions; Accident causes; Accident location; Accident investigation; Single vehicle accidents; Bus accidents\*; Skidding accidents; Tire wear; Gray Line Sightseeing Tours, Inc.\*

HS-005 989 Fld. 1/3; 1/4; 5/2; 5/22

**MOTOR CARRIER ACCIDENT INVESTIGATION. SAFEWAY**

**TRAILS, INC. AND CITIES SERVICE OIL COMPANY—ACCIDENT—SEPT. 10, 1967—NEW JERSEY TURNPIKE**

Bureau of Motor Carrier Safety,  
Washington, D.C.

1967 9p

Report no. 67-8

One fatality, injury to eight, and \$44,000 property damage resulted when a bus collided with the rear of a disabled tractor-semitrailer. The accident was attributed to the operation of a bus on a high speed highway by a driver who was apparently inattentive, combined with the towing of an inadequately lighted disabled vehicle, and the failure to remove that disabled vehicle at the nearest exit.

Search terms: Fatalities; Injuries; Property damage; Buses (vehicles); Tractor-semitrailers\*; High speed; Driver performance; Disabled vehicles\*; Towing\*; Debris removal; Signal lights; Accident investigation; Accident causes; Accident location; Bus accidents\*; Truck accidents; Rear end collisions; Safeway Trails, Inc.\* Cities Service Oil Co.\*

HS-005 990 Fld. 1/3; 1/4; 5/2; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. DOHRN TRANSFER COMPANY—ACCIDENT—SEPT. 27, 1967—JAMESTOWN, INDIANA**

Bureau of Motor Carrier Safety,  
Washington, D.C.

1967 7p

Report no. 67-9

Three fatalities, injury to one, and approximately \$29,000 property damage resulted when a tractor-semitrailer full-trailer combination collided with a police car which was stopped in a traffic lane at the scene of another accident. The accident was attributed to the bad judgment on the part of the truck driver in no approaching flashing warning lights with his vehicle under complete control.

Search terms: Fatalities; Injuries; Property damage; Multitrailers\*; Police cars\*; Driver performance; Warning systems; Signal lights;

Accident location; Accident investigation; Accident causes; Flashing systems; Truck accidents; Rear end collisions; Truck drivers; Dohrn Transfer Co.\*

HS-005 991 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. ROADWAY EXPRESS, INC.—LOAD SHIFT KILLS TRUCK DRIVER—ACCIDENT—OCT. 6, 1967—HORSE CAVE, KENTUCKY**

Bureau of Motor Carrier Safety,  
Washington, D.C.

1967 7p

Report no. 67-10

One fatality, injury to four, and approximately \$6,000 property damage resulted from the shifting of a load which crushed the cab of the tractor-trailer and the top of an automobile stopped at an intersection. The accident was attributed to improper loading.

Search terms: Fatalities; Injuries; Property damage; Load shifting; Tractor-semitrailers\*; Accident investigation; Accident location; Accident causes; Negligence\*; Truck accidents; Automobile accidents; Roadway Express, Inc.\*

HS-005 992 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. INSURED TRANSPORTERS, INC.—ACCIDENT—OCT. 25, 1967—TOWER CITY, N.D.**

Bureau of Motor Carrier Safety,  
Washington, D.C.

1967 6p

Report no. 67-11

Two fatalities, five injuries, and \$21,000 property damage resulted from collision between a tractor, two other vehicles, and a camper bus. A fire was caused. The truck-tractor was towing two vehicles. Truck driver had a record of inability to keep awake and had driven a long tour of duty at high speed.

Search terms: Truck accidents; Accident causes; Accident investigation; Truck drivers; Sleep\*;

## 1/4 Locations (Cont.)

### HS-005-992 (Cont.)

Driver fatigue; Bus accidents\*; Towing\*; Collisions (accidents); Fires\*; Fatalities; Injuries; Property damage; High speed; Truck tractors; Work time standards\*; Insured Transporters, Inc.\*

### HS-005 993 Fld. 1/3; 1/4; 5/20

#### MOTOR CARRIER ACCIDENT INVESTIGATION. THUNDERBIRD FREIGHT LINES, INC.—ACCIDENT—OCT 3, 1967—BLYTHE, CALIFORNIA

Bureau of Motor Carrier Safety, Washington, D.C.

1967 9p  
Report no. 67-12

A tractor-semitrailer was involved in a single vehicle accident resulting in the spillage of about 85 gallons of parathion on the highway. Three persons exposed to this poison had to be hospitalized and the road had to be closed for 18 hours for clean-up and decontamination. Costs of cargo loss and decontamination were about \$35,000. Accident was caused by separation of the front axle because of failure to secure load against shifting.

Search terms: Tractor-semitrailers\*; Single vehicle accidents; Property damage; Accident causes; Accident investigation; Load shifting; Debris removal; Hazardous materials\*; Insecticides\*; Health hazards; Truck accidents; Parathion\*; Thunderbird Freight Lines, Inc.\*

### HS-005 994 Fld. 1/3; 1/4; 5/2; 5/20

#### MOTOR CARRIER ACCIDENT INVESTIGATION. RICHARDSON TRANSFER AND STORAGE CO., INC.—ACCIDENT—NOVEMBER 21, 1967—CUMBERLAND, INDIANA

Bureau of Motor Carrier Safety, Washington, D.C.

1967 11p  
Report no. 67-13

Six fatalities, injuries to 13, and approximately \$15,000 property damage resulted when a tractor-

semitrailer collided with the rear of an automobile stopped behind a school bus. The accident was attributed to the truck driver whose operation of the vehicle was considered reckless and whose performance may have been impaired by fatigue.

Search terms: Fatalities; Injuries; Property damage; Accident causes; Accident location; Tractor-semitrailers\*; School buses; Reckless driving; Driver fatigue; Driver records; Rear end collisions; Automobile accidents; Bus accidents\*; Truck drivers; Richardson Transfer and Storage Co., Inc.\*

### HS-005 995 Fld. 1/3; 1/4; 5/20

#### MOTOR CARRIER ACCIDENT INVESTIGATION. NORTH-EASTERN TRUCKING COMPANY—ACCIDENT—DECEMBER 13, 1967—SMITHFIELD, NORTH CAROLINA

Bureau of Motor Carrier Safety, Washington, D.C.

1967 7p  
Report no. 67-14

One fatality, injury to six, and approximately \$1500 property damage resulted when a tractor-semitrailer collided with the rear of a stopped automobile on a fog and smoke covered highway. The accident was attributed to the driver who was operating the truck at a speed too fast for existing conditions. This driver's record indicated flagrant disregard of traffic rules and regulations.

Search terms: Fatalities; Injuries; Property damage; Tractor-semitrailers\*; Accident cause; Accident location; Unsafe speed; Driver records; Fog; Smoke\*; Visibility; Rear end collisions; Automobile accidents; High speed; Driving conditions; Traffic violations; Truck accidents; Northeastern Trucking Co.\*

### HS-005 996 Fld. 1/3; 1/4; 5/2

#### MOTOR CARRIER ACCIDENT INVESTIGATION. CARLSBAD CAVERN COACHES; WESTERN GREYHOUND LINES; EASTERN GREYHOUND LINES; MIDWEST BUSLINES, INC.—ACCIDENTS—

## DECEMBER 16, 1967-JANUARY 9, 1968

Bureau of Motor Carrier Safety, Washington, D.C.

1968 9p  
Report no. 68-1

Four fatalities, injury to 37, and approximately \$88,000 property damage resulted from four bus-skidding accidents which occurred between December 16, 1967, and January 9, 1968. In each case the bus was the only vehicle involved, and loss of control of the vehicle occurred on a slippery or icy road surface which was general throughout considerable area. The accidents were attributed to the failure of the drivers to handle their vehicles with due regard for the severe operating conditions.

Search terms: Fatalities; Injuries; Property damage; Icy road conditions; Accident causes; Accident location; Driver performance; Unsafe speed; Single vehicle accidents; Accident investigation; Skidding accidents; Bus accidents\*; Motor vehicle control; Driving conditions; High speed; Wet road conditions; Carlsbad Cavern Coaches\*; Western Greyhound Lines\*; Eastern Greyhound Lines\*; Midwest Buses, Inc.\*

### HS-005 997 Fld. 1/3; 1/4; 5/20

#### MOTOR CARRIER ACCIDENT INVESTIGATION. LOU-VERN CORP. AND DIAMOND BROKERAGE COMPANY, INC.—ACCIDENT—FEBRUARY 9, 1968—GREENWOOD, SOUTH CAROLINA

Bureau of Motor Carrier Safety, Washington, D.C.

1968. 13p  
Report no. 68-2

One fatality, injury to one, and approximately \$33,000 property damage resulted when two tractor-semitrailers collided. One of the vehicles was parked on the wrong side of a two-lane highway. The accident was attributed to the drivers. One was unqualified to drive a truck and the other was inattentive.

Search terms: Fatalities; Injuries;

## 1/4 Locations (Cont.)

### HS-005-997 (Cont.)

Property damage; Tractor-semitrailers\*; Accident causes; Accident location; Two lane highways; Accident records; Driver license suspension; Emotions; Driver performance; Driver records; Truck accidents; Careless driving; Side impact collisions; Stress (psychology); Lou-Vern Corp.\*; Diamond Brokerage Co. Inc.\*

### HS-005 998 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. FREEPORT TRANSPORT, INC.—ACCIDENT—FEBRUARY 1, 1968—BAIRDFORD, PENNSYLVANIA**

Bureau of Motor Carrier Safety, Washington, D.C.

1968 7p

Report no. 68-3

One fatality, injury to one, and approximately \$7,000 property damage resulted when a tractor-semitrailer ran off the roadway and plunged down an embankment. The accident was attributed to reckless driving by an intoxicated truck driver.

Search terms: Fatalities; Injuries; Property damage; Accident investigation; Accident causes; Accident location; Tractor-semitrailers\*; Driver intoxication; Driver records; Single vehicle accidents; Truck accidents; Reckless driving; Truck drivers; Drinking drivers; Freeport Transport, Inc.\*

### HS-005 999 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. EDWIN H. FOWLKES AND HERBERT LUMBER COMPANY—ACCIDENT—FEBRUARY 3, 1968—OROGRANDE, NEW MEXICO**

Bureau of Motor Carrier Safety, Washington, D.C.

1968 11p

Report no. 68-4

One fatality, injury to three, and approximately \$30,000 property

damage resulted when one tractor-trailer crossed the center line of a two-lane roadway and collided with another tractor-trailer. The accident was attributed to fatigue in one driver and failure to take evasive action by the other driver who had been drinking.

Search terms: Fatalities; Injuries; Property damage; Tractor-trailers\*; Two lane highways; Accident investigation; Accident causes; Accident location; Driver fatigue; Drinking drivers; Driver performance; Driver records; Truck accidents; Driver intoxication; Careless driving; Collisions (accidents); Herbert Lumber Co.\*

### HS-006 000 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. EAZOR EXPRESS, INC.—ACCIDENT—APRIL 9, 1968—RAYLAND, OHIO**

Bureau of Motor Carrier Safety, Washington, D.C.

1968 11p

Report no. 68-5

Injury to one and approximately \$105,000 property damage resulted when a tractor-semitrailer collided with the overhead structure of a bridge, causing it to collapse. A following tractor-trailer fell into the opening in the bridge floor. The accident was attributed to negligent driving of an overheight-overweight vehicle without the required permit from the State of Ohio.

Search terms: Injuries; Property damage; Tractor-semitrailers\*; Bridges (structures); Negligence\*; Size limits; Weight limits; Accident investigation; Accident causes; Accident location; Driver records; Truck accidents; Bridge surfaces; Height\*; Eazor Express, Inc.\*

### HS-006 001 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. ALFRED A. MERCER—ACCIDENT—MARCH 16, 1968—BENSON, N.C.**

Bureau of Motor Carrier Safety, Washington, D.C.

1968 5p

Report no. 68-6

Six fatalities, injury to one, and approximately \$22,000 property damage resulted from a tractor-trailer's overturning onto an approaching vehicle. The accident was attributed to disregard of hours of service regulations. The truck driver apparently fell asleep.

Search terms: Fatalities; Injuries; Property damage; Tractor-trailers\*; Accident investigation; Accident causes; Accident location; Driver fatigue; Driver restrictions; Truck accidents; Collisions (accidents); Work time standards\*; Sleep\*; Truck drivers

### HS-006 002 Fld. 1/3; 1/4; 5/6; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. TRANSIT HOMES, INC.—TRUCK DRIVER ASPHYXIATED—DEFECTIVE EXHAUST SYSTEM ACCIDENT—OCT. 15, 1968—DE BORGIA, MONT.**

Bureau of Motor Carrier Safety, Washington, D.C.

1968 5p

Report no. 68-7

One fatality resulted from driver asphyxiation from a defective exhaust system. Death was attributed to carbon monoxide poisoning.

Search terms: Fatalities; Carbon monoxide; Defective vehicles; Exhaust systems; Exhaust emissions; Accident causes; Accident investigation; Truck drivers; Asphyxia\*; Transit Homes, Inc.\*

### HS-006 003 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. NORTH AMERICAN VAN LINES, INC.—ACCIDENT—AUGUST 10, 1968—LIBERAL, KANS.**

Bureau of Motor Carrier Safety, Washington, D.C.

1968 10p

Report no. 68-8

Seven fatalities, injury to two, and approximately \$30,000 property damages resulted from the collision of a tractor-trailer which had skidded across the opposing lane of traffic, involving two automobiles. The accident was attributed to unsafe speed for rain-slick pavements and smooth



## 1/4 Locations (Cont.)

### HS-006-003 (Cont.)

tires on tractor.

Search terms: Fatalities; Injuries; Property damage; Tractor-trailers\*; Accident causes; Accident investigation; Accident location; Unsafe speed; Wet road conditions; Tire-road conditions; Skidding accidents; Head on collisions; Side impact collisions; Tire wear; Automobile accidents; Truck accidents; North American Van Lines, Inc.\*

### HS-006 004 Fld. 1/3; 1/4; 5/2

**MOTOR CARRIER ACCIDENT INVESTIGATION. OKLAHOMA TRANSPORTATION CO. AND KANSAS, OKLAHOMA AND GULF RAILWAY—ACCIDENT—OCTOBER 9, 1968—CALVIN, OKLA.**

Bureau of Motor Carrier Safety, Washington, D.C.

1968 7p

Report no. 68-9

Injuries to 44 and \$25,000 property damage resulted when a bus was struck by a train. Accident was attributed to the bus driver who entered the crossing in disregard of warning signals.

Search terms: Injuries; Property damage; Railroads; Railroad grade crossings\*; Accident investigation; Accident location; Accident causes; Driver records; Signal lights; Driver performance; Bus accidents\*; Side impact collisions; Careless driving; Warning systems; Bus drivers; Oklahoma Transportation Co.\*; Kansas, Oklahoma and Gulf Railway\*

### HS-006 005 Fld. 1/3; 1/4; 5/2; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. SUBURBAN MOTOR FREIGHT, INC.—ACCIDENT—SEPTEMBER 27, 1968—MONTPELIER, OHIO**

Bureau of Motor Carrier Safety, Washington, D.C.

1968 9p

Report no. 68-10

One fatality, injury to 17, and

approximately \$10,000 property damage resulted when a tractor-semitrailer collided with the rear end of a school bus. The truck driver was a diabetic requiring one insulin injection per day. His vision was corrected to normal with glasses. The accident was attributed to lack of alertness due in some manner to a change in his physical condition.

Search terms: Fatalities; Injuries; Property damage; Tractor-trailers\*; School buses; Diabetes mellitus\*; Driver physical fitness; Accident location; Accident causes; Accident investigation; Rear end collisions; Truck accidents; Suburban Motor Freight, Inc.\*

### HS-006 006 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. MID-CONTINENT FREIGHT LINES, INC.—ACCIDENT—OCTOBER 20, 1968—KANSAS CITY, MO.**

Bureau of Motor Carrier Safety, Washington, D.C.

1968 11p

Report no. 68-11

Two fatalities and \$1,000 property damage resulted from accident in which an auto struck a tractor-semitrailer broadside in an intersection. Truck driver had been drinking, went through a stopsign, and entered intersection at 60 miles per hour. Truck driver had exchanged duties with the assigned driver, was carrying a female passenger. Inadequate supervision of truck driver is criticized.

Search terms: Truck drivers; Reckless driving; Stop signs\*; Intersections; High speed; Unsafe speed; Fatalities; Property damage; Tractor-semitrailers\*; Side impact collisions; Truck accidents; Automobile accidents; Accident causes; Accident investigation; Drinking drivers; Driver intoxication; Work time standards\*; Mid-Continent Freight Lines, Inc.\*

### HS-006 007 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. HOFFERBER TRUCK LINE, INC.—ACCIDENT OF NOVEMBER 23, 1968—ADMIRE, KANSAS**

Bureau of Motor Carrier Safety, Washington, D.C.

1968 9p

Report no. 68-12

One fatality and \$25,000 property damage resulted from accident in which tractor-semitrailer ran off road at high speed and into a creek. Driver apparently went to sleep, the result of fatigue. Driver had objected to making another trip without rest but was ordered to do so.

Search terms: Fatalities; Truck accidents; Property damage; Single vehicle accidents; High speed; Sleep\*; Driver fatigue; Accident causes; Accident investigation; Tractor-semitrailers\*; Work time standards\*; Hofferber Truck Line, Inc.\*

### HS-006 008 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. GROSS & SONS TRANSPORT COMPANY—ACCIDENT OF JANUARY 24, 1969—JEROME, IDAHO**

Bureau of Motor Carrier Safety, Washington, D.C.

1969 9p

Report no. 69-1

One fatality and \$30,000 property damage resulted from accident in which tractor-semitrailer ran off road and overturned. Truck driver had been on duty an excessive time and evidently went to sleep. He had also been drinking heavily during the trip.

Search terms: Fatalities; Property damage; Truck drivers; Truck accidents; Sleep\*; Driver intoxication; Drinking drivers; Tractor-semitrailers\*; Work time standards; Single vehicle accidents; Rollover accidents; Accident causes; Accident investigation; Driver fatigue; Gross & Sons Transport Co.\*

### HS-006 009 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. TWO VEHICLE SEPARATION ACCIDENTS. KOWALSKY EXPRESS SERVICE—JANUARY 14, 1969—ELIZABETH, N.J.—AIR PRODUCTS AND CHEMICALS, INC.—FEBRUARY 7, 1969—WILMINGTON, DELAWARE**

## 1/4 Locations (Cont.)

HS-006-009 (Cont.)

Bureau of Motor Carrier Safety,  
Washington, D.C.

1969 11p  
Report No. 69-2

Two accidents involving the separation of tractor-semitrailer combinations are described. In both cases the vehicles had been coupled by the drivers and were driven only a few miles before the accidents. One vehicle collided with an auto, resulting in two fatalities and \$4,000 property damage. The other vehicle struck a guardrail resulting in fire and \$10,000 property damage. In the first case the coupling was done negligently and in the second case a locking device for the fifth wheel was not provided.

Search terms: Truck accidents; Tractor-semitrailers\*; Truck drivers; Property damage; Accident causes; Defective vehicles; Guardrails; Fires; Negligence\*; Collisions (accidents); Accident investigation; Automobile accidents; Air Products and Chemicals, Inc.\*; Kowalsky Express Service\*

HS-006 010 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. MOTOR FREIGHT CORP. AND MCCORD TRUCK LINES—ACCIDENT—FEBRUARY 4, 1969—ADAMS, TENN.**

Bureau of Motor Carrier Safety,  
Washington, D.C.

1969 11p  
Report no. 69-3

Two fatalities and about \$45,000 property damage resulted from a head-on collision between two tractor-semitrailers, one of which was trying to pass an auto on an ascending grade. Reckless driving on the part of the truck driver who was attempting to pass caused the accident. This driver had a bad driving record.

Search terms: Fatalities; Property damage; Head on collisions; Reckless driving; Truck drivers; Driver records; Passing (driving);

Road grades\*; Tractor-semitrailers\*; Truck accidents; Accident causes; Accident location; Accident investigation; Motor Freight Corp.\*; McCord Truck Lines\*

HS-006 011 Fld. 1/3; 1/4; 5/20

**MOTOR CARRIER ACCIDENT INVESTIGATION. BRAY LINES, INC.—ACCIDENT OF FEBRUARY 10, 1969—KINGMAN, KANSAS**

Bureau of Motor Carrier Safety,  
Washington, D.C.

1969 10p  
Report no. 69-4

Three fatalities and \$2,000 property damage resulted from a collision between a disabled tractor-semitrailer stalled across the opposing traffic lane and a fast-moving auto at night. The truck had suffered brake failure, and excessive speed of the auto contributed to the accident.

Search terms: Truck accidents; Fatalities; Property damage; Unsafe speed; High speed; Tractor-semitrailers\*; Disabled vehicles\*; Brake failures\*; Night driving; Visibility; Accident causes; Accident location; Accident investigation; Reckless driving; Negligence\*; Automobile accidents; Bray Lines, Inc.\*

HS-006 169 Fld. 1/4; 2/6

**STATES PINPOINT DEATH TRAPS**

Anonymous

Published in *Traffic Safety* v64 n11  
p16-17, 39 (Nov 1964)

State highway departments cooperated with the Bureau of Public Roads in a concerted drive to eliminate the most dangerous highway death traps. Some state spot improvement programs are briefly described from a survey undertaken by the American Road Builders Association.

Search terms: Highway safety; Accident prevention; Federal aid; Financing; State government; Hazards; Accident location; Highway maintenance

HS-006 170 Fld. 1/4

**DRIVEWAY ACCIDENT AND VOLUME STUDIES. PART 2. SERVICE STATIONS**

by Paul C. Box

Published in *Public Safety Systems*  
v34 n4 p15-8 (Jul-Aug 1969)

Analysis of accidents at urban and suburban service station driveways includes volume comparisons, traffic generation characteristics, and design elements. Data were tabulated for 48 stations at which 107 accidents occurred. An important finding which appeared in the tabulation of these data was the freedom from vehicular or pedestrian hazard of the driveways located on local or minor cross-streets. Operational requirements for typical service station driveways are suggested.

## 1/4 Locations (Cont.)

### HS-006-170 (Cont.)

Search terms: Driveways\*; Service stations\*; Traffic volume; Accident studies; Pedestrian safety; Turning (direction change); Accident data; Accident location; Hazards

HS-006 330 Fld. 1/4; 2/6

### CALIFORNIA'S TRAFFIC SAFETY PROGRAM

by R. J. Israel

Published in *Traffic Engineering* v37 n9 p21-7 (Jun 1967)

Improvements to accident location sites on the streets and highways in California are discussed. Mileposts have been installed so that accidents can be located more precisely. A data processing system has been established to pinpoint the locations needing improvement most. Includes discussion of costs.

Search terms: California; Safety programs; Accident prevention; Accident location; Data processing; Accident records; Highway maintenance; Highway costs

HS-006 357 Fld. 3/11; 1/4

### ACCIDENT RISK TO PEDESTRIANS ON AND WITHIN 50 YARDS OF ZEBRA CROSSINGS

by A. M. Mackie

Published in *Traffic Engineering 2nd Control* v4 n8 p448-50 (Dec 1962)

Numbers of accidents to pedestrians at 21 zebra crossing sites in London during 1961 were obtained so that a risk ratio could be calculated. The risk of injury to a pedestrian who uses a crossing is still significantly less than the risk he runs within 150 feet of it. Furthermore, the risk on the crossing appears to have dropped from about 50 percent to about 28 per cent of the risk off the crossing but within 150 feet.

Search terms: Accident rates; Zebra crossings; Pedestrian accidents; Accident risks; Mathematical analysis; London; Pedestrian safety

HS-006 496 Fld. 1/4

### DETERMINING ROAD ACCIDENT HISTORIES OF PARTICULAR LOCATIONS

by W. E. Hotchkiss

Published in *Traffic Engineering and Control* v11 n2 p94-5 (Jun 1969) 7 refs

Computer processing enables accurate histories of all locations in an area to be prepared at reasonable cost and in

a state enabling quick supply of information. A method designed for use in New South Wales is described. Every police road accident report is converted to punched cards and quarterly printouts are made which identify accident locations.

Search terms: Accident location; Australia; Data processing; Computers; Accident reports

HS-006 552 Fld. 1/4; 2/9

### HIGH FREQUENCY ACCIDENT LOCATIONS ON THE FEDERAL AID PRIMARY AND FEDERAL AID SECONDARY SYSTEMS

by R. M. Williston

Connecticut. Highway Dept.. Wethersfield

May 1966 29p

Report no. TR-2-5

The Connecticut Highway Department conducted a statewide survey of road systems using accident records to determine high accident concentrations. Types of accidents, accident factors, and types of highway improvements are displayed. It was considered significant that 47 of the first 50 locations were signalized indicating that traffic signals are not cure-alls. Another common inadequacy was the lack of proper channelization devices at intersections.

Search terms: Connecticut; Accident locations; Accident types; Highway design; Intersections; Interstate Highway System; Spot Improvement Program; Accident data; Highway safety; Traffic signals; Computer programs; Highway safety; Traffic control devices; Channelized intersections

AVAILABILITY: Corporate author

HS-006 554 Fld. 2/4; 1/4

### GROOVING TREATMENT

by Emmett Y. Stafford

Published in *Roadways* v15 n1 p7-8 (Jan-Feb 1969)

A reduction of 94.7% in accidents at a hazardous location on an interstate highway in North Carolina is credited to pavement grooving. Of 19 accidents on the same road curve, 18 took place on wet pavement. Benefit

HS-006 328 Fld. 1/3; 2/4; 1/4

### TRAFFIC ENGINEERING TO REDUCE ACCIDENTS

by Kenneth W. Anderson

Published in *Traffic Engineering* v39 n12 p48-53 (Sep 1969)

A program for seeking out and improving high accident locations is described. The type of study necessary to identify accident locations is discussed. The procedure for determining what improvements are necessary to reduce accidents is stressed, involving study of accident types and patterns. Development of priorities for expenditures is also needed, and should include study of the cost of accidents. Application of this program in Utah is outlined.

Search terms: Accident location; Accident types; Accident analysis; Accident causes; Accident prevention; Costs; Utah; Highway maintenance; Highway characteristics; Benefit cost analysis

## 1/4 Locations (Cont.)

### HS-006-554 (Cont.)

cost analysis indicates that the grooving project has more than paid for itself the first year.

Search terms: Wet road conditions; Grooving; Road curves; Interstate highway system; North Carolina; Benefit cost analysis; Accident rates; Accident prevention; Accident location

### HS-006 664 Fld. 1/4; 4/7

#### ACCIDENT ANALYSIS AT RAILROAD-HIGHWAY GRADE CROSSINGS IN URBAN AREAS

by W. D. Berg; J. C. Oppenlander

Joint Highway Research Project, Lafayette, Ind.

6 May 1969 33p 10 refs  
Report no. JHRP-11

Mathematical models were developed to measure the relative safety or hazard of urban grade crossings and to establish priorities for the improvement of protection. A discriminant model which expresses potential hazard as a function of protective device, average daily highway traffic, average daily train traffic, degree of effective sight distance, and roadside distractions was 74% successful. Data were collected at 295 accident locations and 281 non-accident locations in urban portions of Indiana.

Search terms: Mathematical models; Railroad grade crossings; Grade crossings (highways); Hazards; Accident analysis; Accident location; Urban areas; Indiana; Accident prevention; Forecasting; Regression analysis; Visibility; Traffic volume; Warning systems; Statistical analysis; Accident risks

AVAILABILITY: Corporate author

### HS-006 719 Fld. 1/4; 1/2

#### THE NEW JERSEY MILEPOST SYSTEM

by William T. Baker

Published in *Traffic Engineering* v37 n9 p28-30 (Jun 1967)

Highway mileposts are an effective means of locating accidents but must be attended by an effective accident,

analysis program. The installation of mileposts and the proposed accident analysis system in New Jersey are described. The mileposts will also help to pinpoint locations with a high rate of severe accidents.

Search terms: Accident location; Accident analysis; New Jersey; Hazards; Accident severity; Mileposts

### HS-006 755 Fld. 4/3; 1/4; 1/3

#### EVALUATION OF CRITERIA FOR SAFETY IMPROVEMENTS ON THE HIGHWAY

by Roy E. Jorgensen; John C. Laughland

Published in *Traffic Engineering* v37 n11 p33-8 (Aug 1967)

Methods are discussed for the identification of hazardous locations, the forecasting of accident reduction, cost-effectiveness analysis, and better highway accident records systems.

Search terms: Accident location; Accident prevention; Hazards; Forecasting; Benefit cost analysis; Accident records; Highway research; Accident rates

